



# A Social Exchange Perspective on Outside of Class Interactions between Underrepresented Students and Faculty

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## Abstract

Existing explanations of faculty-student interactions emphasize social-organizational characteristics of higher education to the exclusion of social-psychological dimensions of the interactions themselves. Yet, student perceptions are essential cognitive elements that influence frequency of, and growth from, informal interaction with faculty. Drawing on a survey of students at a large public university, this paper expands theoretical understanding of faculty-student interactions by considering how social exchange theory helps explain frequency of, and growth from, informal interactions—and how such patterns vary by social identity.

**Keywords** Social exchange theory · Faculty-student interactions · Underrepresented students

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## Introduction

For both students and faculty, outside of class interactions are inherently social exchanges characterized by costs and benefits. For faculty—a term we use inclusively to refer to individuals with permanent or contingent academic appointments at colleges and universities—the costs might include sacrificing time invested in tasks tied to other valued activities (such as research) while the benefits might include satisfaction derived from helping a student think through a problem. For a student, the costs might also include sacrificing time that could be invested in a more valued activity (such as a student organization) while the benefits could include various dimensions of personal, academic, or social growth. At their best, these dyadic interactions are reciprocal exchanges in which the benefits outweigh the costs for both parties. In less ideal circumstances, these exchanges do not occur, perhaps because students do not anticipate anything to be gained from them or because the perceived costs outweigh the benefits a student would otherwise seek out.

Researchers have demonstrated that there are benefits to these interactions. Indeed, one of the most well documented patterns in the study of higher education is the relationship between faculty-student interactions and positive outcomes such as educational success and retention (Cole, 2010; Pascarella & Terenzini, 2005), psychological well-being (Bowman, 2010), and moral development (Mayhew & King, 2008). There is also a strong understanding of the implications of social organizational characteristics related to students (such as race, gender, and first-generation status) and institutions (such as size and institutional type) for the frequency and outcomes of these interactions. We know less, however, about the social-psychological dimensions of faculty-student interactions, particularly as it relates to the influence of perceived costs and values of informal interaction on whether students meet with, and grow from, faculty.

Understanding interactions between students and instructors of all types through a social exchange lens is important for at least two reasons. First, past survey research has been unable to model basic mechanisms related to perceived value, costs, and personal growth that shape students' views of interacting with faculty. Researchers know that these interactions are important, for example, but it is unclear whether students perceive them as such. Given that scholars consistently find that informal outside of class interaction is fleeting and elusive (Cox & Orehovec, 2007; Einarsan & Clarkberg, 2010), despite recognized gains from doing so, there is merit in looking beyond social organizational characteristics to the social-psychology of interactions themselves. Second, the combination of these perspectives, and the social exchange lens in particular—may provide new insights into why how and why the experience of faculty-student interactions may be conditional on the social status of the students involved, especially as it relates to underrepresented students (Cole & Griffin, 2013; Kim & Sax, 2017). Students with marginalized social identities, for example, may have a different sense of the costs and benefits of interacting with faculty relative to students in dominant social groups.

Accordingly, this paper examines two research questions: How do perceived costs and benefits of interacting with faculty outside of class influence frequency of, and growth from, these exchanges? And, how do such influences vary by social identity? To address these questions, we draw on social exchange theory to examine outside of class interactions of racial minorities, LGBTQ students, students with disabilities, and student-veterans. To do so, we draw on a survey of 953 students at a flagship public university. We argue that outside of class faculty-student interactions are low because the value that underrepresented students assign to such interactions is outweighed by perceived costs of doing so. Specifically, we consider the importance undergraduate students place on interacting with faculty (tenured/tenure-track and

adjunct) outside of the classroom, students' self-reported frequency of and comfort with such interactions, and their perceived growth from such interactions. We find that women, sexual minority, and military students report significantly less comfort with interacting with faculty outside of the classroom as compared to men, non-disabled, and non-military students, respectively. However, these groups do not significantly differ from their comparison groups in the importance they place on these interactions or the frequency with which they report such interactions. Once we account for these groups' lower levels of comfort with interacting with faculty outside of the classroom, they report similar or even greater growth resulting from such faculty interactions. This suggests that addressing these groups' comfort with interacting with faculty outside of the classroom is important. In social exchange terms, if faculty and universities can lower the perceived costs of such interactions, students will be more likely to obtain the resources they otherwise forego.

### **Social-Psychological Dimensions of Informal Faculty-Student Interactions**

Students experience considerable personal growth as a result of meeting with faculty outside of class, in terms of the development of aspirations (Kim & Sax, 2009), social abilities (Kim et al., 2009) and career interests (Hurtado et al., 2011)—and educational attainment more broadly (Pascarella & Terenzini, 1977; Anaya & Cole, 2001; DeAngelo, 2014). Outside of class interaction with faculty also increases student satisfaction with higher education (Einarsan and Clarkberg, 2010). Yet, while it is possible that even incidental contact with faculty can have a positive influence on students, the recognized benefits of informal faculty-student interaction exist alongside evidence that students rarely seek them out (Cox & Orehovec, 2007; Einarsan & Clarkberg, 2010).

Most theoretic frameworks examining why students do not access the benefits of outside of class interactions emphasize social organizational dimensions of higher education. A key approach is to focus on individual level differences across student populations such as race (Einarsan & Clarkberg, 2010; Kim, Chang, & Park, 2009; Kim & Sax, 2009), class (Padgett, Johnson, & Pascarella, 2012) and gender (Kim & Sax, 2009). Clear differences in the frequency and outcomes of interaction across student populations have also led researchers to investigate the role of institutional characteristics such as racial climate (Hurtado, 1994) and institutional type (Hurtado et al., 2011). Focusing on the influence of such characteristics on outside of class interactions is important because it helps identify bases of inequality in higher education and organizational properties that enable and constrain faculty-student interaction.

The social organizational perspective, however, tends to underemphasize social-psychological processes that are relevant to rates and outcomes of informal faculty-student interaction. To be sure, Tinto's (1975) conceptual emphasis on social integration has led scholars to capture psychological identification with campus community. In this respect, researchers have examined student sense of belonging, both as an influence on (Hurtado et al., 2011) and outcome of faculty-student interaction (Kim & Lundberg, 2016). Identification with campus community, however, is distinct from faculty-student interaction. For example, a student might perceive her campus as hostile to her sexual identity but nevertheless view faculty-student interaction as important and beneficial. Conversely, a student could feel a very strong sense of belonging on campus yet see no benefits to informal interaction with faculty. There is a social psychology of informal faculty-student interaction that qualitative research has explored (cf. Cotton & Wilson, 2006; Cox &

Orehovec, 2007; Griffin, 2012) and that survey research has ignored—largely due to an absence of relevant measures on existing survey instruments. And while qualitative research has provided insights into why rates and outcomes of faculty-student interaction outside of class may be fleeting and superficial, to date survey research has not drawn on this foundation. This is detrimental not only because personal cognitive factors are directly relevant to informal faculty-student interaction, but also because they may help explain why patterns of interaction vary across student populations, as we will explain below. We use the term “faculty” in the most inclusive sense, referring to full-time (tenured and tenure-track) and adjunct faculty.

## A Social Exchange Theory of Outside of Class Interactions

We view relationships between faculty and students through the lens of social exchange theory (Griffin, 2012; Lawler & Yoon, 1996; Molm, 2006), which conceives of social relationships in instrumental and transactional terms. This conception of faculty-student interaction is also present in social capital theory (Dika, 2012), which emphasizes the structure of social networks, rather than cognitive dimensions of interaction. In general, social exchange theory emphasizes that individuals engage in dyadic relationships to maximize personal outcomes (tangible and intangible) that would otherwise be difficult to achieve independently (Molm, 2006; Emerson, 1981). While such relationships are reciprocal, they also include costs and benefits. In a mentoring relationship, for example, a faculty member may experience a psychosocial benefit from helping a student develop her dissertation, but nevertheless experience costs in terms of time and attention to research (Griffin, 2012). Accordingly, faculty-student interactions are a relational exchange in which one party gains access to something of value while minimizing perceived costs. For a student, valued resources may include assistance with issues related to ideas discussed in class, career plans, personal problems, research collaborations, or other issues unrelated to coursework. Interactions may also include perceived emotional or opportunity costs that outweigh potential benefits. Students, for example, may not wish to draw attention to themselves or their work. Underrepresented students may fear that they will be treated or judged based on a social attribute that is devalued by faculty. From this perspective, low rates of outside of class interaction result from the perception that they are perceived as unimportant (or in social exchange terms, of limited value) or uncomfortable (costly).

To be sure, perceptions do not necessarily reflect reality because students rarely can be entirely sure what their instructors think about them. A politically conservative student, for example, might avoid informal interaction with an instructor, fearing—but not actually knowing—that the instructor may look down on this political ideology. Assessment of the costs and benefits of social exchange is therefore at best characterized by bounded rationality.

### Perceived Importance

The social exchange perspective implies that students will pursue outside of class interactions only if they are regarded as important: the perceived benefits outweigh the perceived costs. Despite theoretical precedent, the empirical basis from which we can understand the role of perceived importance is quite limited. Cotton and Wilson’s (2006) focus group-based study provides an important exception. One student in their study, for example, explained that “I’ve never had a reason to see a faculty member outside of class—I understood everything they said in class and so I didn’t need to visit them during office hours for anything” (Cotton & Wilson, 2006: 497). Thus,

a simple reason that informal interactions are infrequent could be that students perceive them as unimportant. Another exception is found in Cox and Orehovec's (2007) study of informal interaction in a residential college at a large public university. They found that even unintentional and incidental contact between faculty and students was meaningful to students (Cox & Orehovec, 2007). In principle, students may not grow from informal interaction if they have already deemed it unimportant, but Cox and Orehovec's (2007) research suggests that students who interact with faculty will experience personal growth, independent of perceived importance.

We expect that perceived importance will vary by undergraduate rank and parental attainment. Cotton and Wilson (2006) found that juniors and seniors are more aware of the importance of relationships with faculty, largely because they are likely to have the same faculty member for more than one class in upper division coursework compared to general curriculum classes taken during the freshman and sophomore years. It is also possible, however, that students in their first year or two of college are more likely to view outside of class interactions as important, given the relative newness of the college environment and the shift in teaching and learning compared to secondary education.

Perceived importance may also be a function of cultural capital. Lareau (2003), for example, finds that middle-class parents are more likely than poor or working-class parents to demonstrate how to actively intervene and pursue one's self-interests when dealing with teachers. Other research demonstrates that parents' cultural coaching leads to class-based problem-solving strategies among children (Calarco, 2014). Accordingly, as the educational attainment of a student's parents increases, one may anticipate a greater likelihood that a student will regard outside of class interactions as important.

We see little reason to assume perceived importance will vary across other dimensions of social identity, particularly among underrepresented subsets of students. Students with disabilities may represent one exception to this assertion. On one hand, they may assign greater value to outside of class interaction with faculty based on the need to discuss or arrange accommodations such as alternative testing services (Barnard-Brak, Lechtenberger & Lan, 2010). On the other, many campuses provide a disability resource center that manages such accommodations.

## Perceived Costs

Even if students perceive interaction as important, discomfort interacting with faculty may preclude outside of class interactions. Students interviewed in the Cotton and Wilson (2006) study, for example, cited comfort as a key reason for eschewing outside of class interactions with faculty. Even if a student has an intellectual interest, Cotton and Wilson (2006) explain, they may either feel uncomfortable speaking with faculty or perceive that it is not the responsibility of a faculty member to meet out of class. Perceived comfort interacting with faculty, however, has not been modeled in existing survey-based research. Some measures employed in existing work—such as supportive campus environments (Umbach & Wawrzynski, 2005), general faculty support (Sax et al., 2005), and perceptions that faculty treat students with respect and support (Cole & Espinoza, 2008)—may influence but nevertheless be distinct from comfort interacting with faculty outside of the classroom. Drawing on findings from Cotton and Wilson (2006), we anticipate that discomfort will be negatively associated with frequency of informal faculty interaction.

Social exchange theory also suggests that discomfort will influence perceived growth from informal interaction with faculty. A central thread in social exchange theory concerns the role

of everyday emotions in exchange relationships. Lawler and Yoon (1996), for example, demonstrate that even mild emotions such as feeling sad or unhappy can be a subtle hindrance to negotiating social exchange (and by contrast, mild emotions such as feeling happy or excited can lead an individual to expect an exchange to be rewarding). Outside of class interactions with faculty can thus be considered as an object toward which students develop an emotional response. Accordingly, even a mild emotion such as discomfort may undermine whether and how students approach interactions with faculty. Even if students view outside of class interactions as important, the value or gains derived from such interactions could be undermined or outweighed by discomfort—a cost of such interactions. Drawing on Lawler and Yoon (1996), we expect that discomfort will be negatively related to perceived growth from informal faculty interaction, on the basis that discomfort will hinder a student's ability to access potential benefits of social exchange.

Finally, we anticipate that the key mechanism explaining the frequency and perceived growth of outside of class interactions between faculty and underrepresented students will be comfort interacting with faculty. Comfort interacting with faculty outside of the classroom is likely to be especially relevant to students from underrepresented groups on campus such as racial minorities, LGBTQ students, students with disabilities, and veterans. Students from these groups have different experiences and issues that they confront on college campuses, but there are several reasons why they share in common the potential for discomfort interacting with faculty. One basis of discomfort is cultural competency. Studies have documented student perceptions that faculty misunderstand the needs and issues faced by students with disabilities (Greenbaum, Graham, & Scales, 1995) non-heteronormative students (Rankin & Beemyn, 2012), and student-veterans (DiRamio, Ackerman, & Mitchell, 2008; Osborne, 2014). A second basis of discomfort may stem from the inability of underrepresented students to see their identities reflected in the faculty (cf. Quaye, Tambascia, & Talesh, 2009). Finally, student concerns about broader campus climates may color how they perceive individual faculty members. Scholars have shown that LGBTQ students often experience a hostile climate due to harassment and hostility (Bieschke, Eberz, & , 2000; Renn, 2010). However, Garvey and Inkelas (2012) find that lesbian, gay, and bisexual students report significantly higher levels of satisfaction with faculty interactions relative to heterosexual students. With respect to minority students, Cole (2007) finds that perceptions of racial insensitivity on campus leads to fewer interactions with faculty relative to whites. Student-veterans in Osborne's (2014) study expressed concerns that college campuses would be "anti-military" based on the "liberal" political climate on campus. Even if faculty members do not contribute to these views or actual climates, underrepresented students may nevertheless fear that faculty are indeed a part of it.

## Data and Measurement

### Data

The data for this analysis came from a broader mixed-methods study of non-classroom interactions between instructors and underrepresented students, including a survey of undergraduates and in-depth interviews with 20 survey participants and 15 faculty members who were referenced by students during interviews. In this analysis, we examine the survey data. The data were collected during the first four months of 2018 at a public university in the Western region of the United States. Overall undergraduate enrollment at the university is approximately 16,000. With respect to racial composition, white students constitute over half

of the student enrollment followed by Hispanics (20%), Asian Americans (8%), and biracial students (6%). Two colleges—Science and Liberal Arts—were selected because they are the two largest colleges on campus in terms of enrollment, increasing our ability to assess the experiences of underrepresented students on campus. The survey was conducted with the support and encouragement of leadership in both colleges. Majors in the College of Liberal Arts include the humanities (English, History, and Philosophy), social sciences (anthropology, political science, psychology, and sociology), languages, fine arts (e.g., music, dance, and theatre), and other fields of study such as criminal justice, communications, and women’s studies. In the College of Science, the core majors include biology, chemistry, geography, mathematics, and physics.

A total of 5261 students were invited to complete the survey, which was incentivized with a random drawing for two \$50 gift cards. A total of 953 of the surveys were completed online, amounting to a response rate of 22.1% (using American Association for Public Opinion Research definition 1 for response rates). Examination of response patterns showed that respondents were more likely to be female (67.0% of respondents compared to 57.3% of sample frame), slightly more likely to be part of the university’s college of science (41.5% of respondents compared to 37.1% of sample frame), and more likely to have higher cumulative grade point averages (3.30 among respondents compared to 3.09 among sample frame).

One of the key considerations governing the design of the survey instrument was the inclusion of measures that capture students’ perceptions of the importance of outside of class interactions, given suggestive evidence in qualitative research that infrequent interaction may stem from perceived unimportance (Cotton & Wilson, 2006). The instrument included 40 questions, a majority of which either replicated existing questions from the National Survey of Student Engagement (NSSE)—a well-tested instrument for examining faculty-student interactions in general—or modified NSSE questions about interactions to explicitly emphasize those taking place outside of the classroom. The themes of the instrument included demographic questions, perceptions of in-class teaching procedures, and a series of blocks about various dimensions of outside of class interactions. A key way our instrument builds on the NSSE instrument, apart from explicitly focusing on outside of class interactions, is asking about student comfort with and the perceived importance of different outside of class interactions—given our interest in capturing the value that students assign to meeting with faculty. Because students are exposed to a broad array of instructors, from part-time to tenured professors, we utilized the term “instructor” on the survey instrument. Our analysis is thus unable to distinguish between contingent and full-time faculty, who have different levels of availability to students outside of the classroom.

## Measures: Outcomes

We examine four outcomes in this study, with a particular interest in rates of and growth from exchange. The first is a scale representing students’ perceived importance of interactions with faculty outside of class, which captures social exchange theory’s emphasis on benefits anticipated from an exchange. Students were asked, “Thinking about the current school year, how much importance do you assign to the following activities with instructors?” Five activities were offered: Meeting outside of class to discuss ideas presented during class; Meeting outside of class to discuss my career plans; Meeting outside of class to discuss a personal problem; Meeting to discuss the potential for a research project in collaboration with a faculty member; Working with faculty on student activities unrelated to coursework

(committees, student groups, etc.). Students rated each activity as either (0) not important, (1) moderately important, or (2) very important. The mean response across these items was taken to represent overall perceived importance of interactions with faculty outside of class. The Cronbach's alpha for this scale is .71.

The second outcome is a scale representing students' reported frequency of interactions with instructors outside of class, which captures the extent to which students engage in exchange activities with faculty. Students were asked, "During the current school year, how often have you done the following with instructors? The activities offered mirrored the five activities offered in the perceived importance scale described above. Responses were (0) never, (1) sometimes, (2) often, and (3) very often. The mean response across these items was taken to represent overall frequency of interaction with faculty outside of class. The Cronbach's alpha for this scale is .77.

The third outcome is a scale representing students' comfort with interacting with instructors outside of class, which captures our conceptual emphasis on discomfort as an emotional cost that may hinder engagement in social exchange. This scale consists of two items. The first asked students to rate "the extent to which you agree" with the statement, "I feel comfortable discussing my academic performance with my instructors outside of class." The second item asked students to rate their agreement with the statement, "If I had a personal problem impacting my academic performance, I would feel comfortable discussing it with my instructors outside of class." Possible responses for both items were (-2) strongly disagree, (-1) disagree (0) neutral, (1) agree, and (2) strongly agree. The Cronbach's alpha for this scale is .79.

The final outcome is a scale of two items assessing students reported growth from interactions with instructors outside of class, which reflects actual benefits resulting from exchange activity. The first item asked students to rate their agreement with the statement, "My non-classroom interactions with instructors have had a positive influence on my personal growth, values, and attitudes." The second item asked students to rate their agreement with the statement, "My non-classroom interactions with instructors have had a positive influence on my intellectual growth and interest in ideas." Possible responses for both items were (-2) strongly disagree, (-1) disagree (0) neutral, (1) agree, and (2) strongly agree. The Cronbach's alpha for this scale is .86.

## Measures: Predictors

We examine the role of a variety of predictors in assessing differences in students' frequency, perceived importance, comfort with, and growth from interactions with instructors outside of the classroom. Several of these predictors assess membership in minority groups. The first of these represents students' race or ethnicity. Students were asked, "What is your ethnicity?" Students were instructed to select all that apply from the following options: white, black, American Indian/Alaskan, Hispanic/Latino, other race, or prefer not to answer. Students who selected more than one option were recoded into a multiple race category. Rather than treating the "prefer not to answer" group as missing data, we include this category when computing our estimates. The white category serves as the reference group in the analyses below.

Students were also asked to identify their gender identity and sexual orientation. For gender identity, students could select from male, female, another gender, or prefer not to respond. The male category serves as the reference group in the analyses. For sexual orientation, students could select from straight, lesbian, gay, bisexual, queer, another



orientation, questioning or unsure, and prefer not to respond. We recode these categories into heterosexual (straight), non-heterosexual (lesbian, gay, bisexual, queer, another orientation), and prefer not to respond. The heterosexual category serves as the reference group in the analyses. Another question asked students, “Have you been diagnosed with any disability or impairment?” Responses were (0) no or (1) yes. Also asked was a question assessing whether students were “a current or former member of the US Armed Forces, Reserves, or National Guard?” Responses were (0) no or (1) yes.

Also included in the analysis are a number of measures representing students’ academic status and background. The first represents the students’ class level, with responses of (0) freshman/first year, (1) sophomore, (2) junior, or (3) senior. A second represents whether the student is a full-time student, coded as (0) no or (1) yes. To capture residential distance from campus, which may be important to the ease with which students may meet with faculty, another question asked students “where you are living right now?” Responses were (1) residence life on campus, (2) walking distance to campus, (3) farther than walking distance, (4) none of the above. The first response serves as the reference category in the analysis. Also included in the analysis is an indicator for whether the student is majoring in the university’s college of science or college of liberal arts and the student’s cumulative grade point average. Both of these measures come from administrative data rather than the survey itself. Finally, a question from the survey asking students “the highest level of education completed by either of your parents (or those who raised you)” is included in the analysis. Possible responses ranged from (0) did not finish high school to (6) doctoral/professional.

## Analysis Plan

The analysis for this study began by examining descriptive statistics for all measures described above. We then examined the Pearson correlation coefficients between the four measures of student interactions (frequency of, comfort with, importance of, and growth from). The analysis then utilized ordinary least squares regression models to examine the predictors of three of these interaction outcomes: frequency of, comfort with, and importance of interactions. Finally, our final analysis utilized ordinary least squares regression models to examine how these three interaction measures predict a student’s perceived growth from their interactions with faculty. In this final analysis, we look at several models including the control measures, the three other interaction measures individually, and a final model that includes all controls and interaction measures. All analyses were conducted using Stata version 15.1.

For all regression models we examined a variety of diagnostic tests. For instance, we examined variance inflation factors to assess for potential multicollinearity problems, but these did not indicate any concerns as all were well below 2.0. We also assessed the presence of outliers using the *iqr* command in Stata. Our examination found only a handful of cases in select models that could be considered as outliers, and models that excluded these cases did not change the findings of the analyses. Hence, we do not exclude them or present alternative models below.

## Results

We begin by examining descriptive statistics for the measures included in our analysis, as presented in Table 1. The mean for the scale of students’ ratings of the importance of

**Table 1** Demographic and Educational Characteristics of Sample

	Mean or Percentage	Min	Max
<b>Outcomes</b>			
Importance of Outside Interactions	.96	0	2
Frequency of Outside Interactions	.56	0	3
Comfort with Outside Interactions	.72	-2	2
Growth from Outside Interactions	.72	-2	2
<b>Race</b>			
White	59.0%	–	–
Black	1.9%	–	–
Hispanic	19.0%	–	–
Asian	9.6%	–	–
Other	2.0%	–	–
Multiple race	6.4%	–	–
Prefer not to report	2.2%	–	–
<b>Gender</b>			
Male	30.1%	–	–
Female	67.0%	–	–
Other	1.6%	–	–
Prefer not to report	1.4%	–	–
<b>Sexual Identity</b>			
Heterosexual	76.6%	–	–
Non-heterosexual	23.4%	–	–
<b>Disability Status</b>			
Not disabled	86.4%	–	–
Disabled	13.6%	–	–
<b>Military Status</b>			
Not current or former military	96.4%	–	–
Current or former military	3.6%	–	–
<b>Class Level</b>			
Full-time Student	87.8%	–	–
Cumulative GPA	3.30	0	4
<b>College</b>			
Liberal Arts	58.5%	–	–
Science	41.5%	–	–
<b>Residence</b>			
On campus	22.4%	–	–
Walking distance	24.7%	–	–
Farther than walking	50.0%	–	–
Other	3.0%	–	–
<b>Parental Education</b>			
	3.04	0	6

*N* = 953

interactions with faculty outside of the classroom shows that students tended to rate these interactions as moderately important (0.96). However, the mean for the scale for students' reported frequency of having these interactions shows that these interactions were relatively rare (0.56), tending to fall between the “never” and “sometimes” points on the individual items. The means for the comfort with (0.72) and growth from (0.72) outside interactions scales show that students tended to lean towards modest agreement that they were comfortable with and benefitted from such interactions.

Of course, these outcome measures are likely related to each other. To examine this, we turn to Table 2, which shows the correlations between the four outcomes. Although all of the measures are significantly correlated with each other, we see that the correlation between frequency of faculty interactions and perceived importance of faculty interaction is on the

**Table 2** Correlations between outcome measures regarding student interactions with faculty outside of classroom

	Importance	Frequency	Comfort	Growth
Importance	–	–	–	–
Frequency	.48**	–	–	–
Comfort	.26**	.27**	–	–
Growth	.30**	.37**	.65**	–

N = 953; \* $p < .05$  \*\* $p < .01$

stronger side ( $r = 0.48$ ). Perhaps unsurprisingly, students who rated interacting with faculty outside of the classroom as more important also reported more interactions with faculty outside the classroom. Given the cross-sectional nature of these data, we cannot be sure if students engaged in more interactions because they viewed them as important, or if students rated interactions as more important because had more of them.

Similarly, Table 2 shows that students’ reported comfort with interacting with faculty outside the classroom is strongly correlated with their self-perceived growth from such interactions ( $r = .65$ ). Again, we cannot be entirely sure of the causal direction. It is possible that being comfortable with such interactions allows for more growth to result from them. Or, it is possible that perceiving growth from such interactions with faculty produces more comfort with the idea of interacting with faculty outside of the classroom.

Table 3 examines ordinary least squares regression models predicting students’ ratings of the importance of faculty interactions outside the classroom, the frequency of such interactions, and students comfort with these interactions. Looking first at the importance outcome, we found very few systematic patterns in explaining these ratings. In fact, the only significant predictor is students’ class level—students in more advanced years rated interactions with faculty outside of the classroom as less important than those in earlier years. We did not find any significant differences across race and ethnicity (relative to white students), gender (relative to male students), sexual minority status, disability status, or military status. It seems that these groups did not rate interacting with faculty outside of the classroom as any less or more important than their respective comparison groups.

Turning to the frequency of outside interactions outcome, we found that class level is also significantly associated with this outcome. Specifically, class level is associated with increased frequency of interacting with faculty outside the classroom. This is interesting, as we previously found that class level is negatively associated with students’ ratings of the importance of outside interactions. In other words, students in more advanced years reported that they interacted with faculty more frequently outside of the classroom but viewed these interactions as less important. This could reflect the influence of course structures in higher education. For example, upper-level courses typically reflect advanced areas of focused inquiry in settings (such as small seminars and capstone courses) designed to foster more interactions, both formal and informal. We also found that students in the university’s college of science reported significantly less frequent interactions with faculty outside of the classroom relative to students in the college of liberal arts. However, we again did not find any significant differences by race and ethnicity, gender, sexual orientation, disability status, or military status. In short, these groups did not report interacting with faculty outside of the classroom less frequently than their comparison groups.

**Table 3** OLS regression predicting outside of class interaction importance, frequency, and comfort

	Importance of Outside Interactions	Frequency of Outside Interactions	Comfort with Outside Interactions
Race			
White (ref.)	–	–	–
Black	.02	.03	.29
Hispanic	.05	.03	-.01
Asian	-.03	.01	.03
Other	.11	.02	.02
Multiple race	-.03	-.04	.13
Prefer not to report	.17	-.06	-.29
Gender			
Male (ref.)	–	–	–
Female	.02	-.01	-.14*
Other	-.04	-.17	-.19
Prefer not to report	.02	.14	.08
Sexual Identity			
Heterosexual (ref.)	–	–	–
Non-heterosexual	-.02	-.05	-.36**
Disability Status			
Not disabled (ref.)	–	–	–
Disabled	.03	.01	.08
Military Status			
Not current or former military (ref.)	–	–	–
Current or former military	.16	-.11	-.58**
Class Level	-.03*	.07**	-.01
Full-time Student	.07	.09	.03
Cumulative GPA	.04	.02	.22**
College			
Liberal Arts (ref.)	–	–	–
Science	-.02	-.07*	-.35**
Residence			
On campus (ref.)	–	–	–
Walking distance	.04	-.01	-.01
Farther than walking	.03	-.03	.08
Other	-.02	-.09	-.11
Parental Education	.01	.01	.05**
Adjusted R-squared	.001	.02	.07

Note: N = 953; \* $p < .05$  \*\* $p < .01$

The final column in Table 3 examines students' self-reported comfort with faculty interactions outside of the classroom. Here we found some significant differences across the underrepresented groups of interest. First, we found that female students reported significantly less comfort with interactions with faculty outside of the classroom relative to male students. Similarly, sexual minority students reported less comfort with these interactions relative to heterosexual students. Students who were currently or formerly in the military also reported significantly less comfort with faculty interactions outside of the classroom relative to students who had not been in the military. We did not find any significant differences across race and ethnicity relative to white students, nor did we find any significant differences between students who are disabled and those who are not.

Although not our primary interest here, we note that the analysis also shows that students with higher GPAs reported significantly greater comfort with faculty interactions outside of the

classroom, as did students with parents of higher educational attainment. On the other hand, students in the college of science reported significantly less comfort with these interactions as compared to students in the college of liberal arts.

To reiterate the findings so far, women, sexual minority, and military students reported less comfort with interacting with faculty outside of the classroom, but these groups did not view these interactions as less important or report these interactions as occurring less frequently than their comparison. This suggests that, despite their lack of comfort with these interactions, these groups did not devalue or avoid interacting with faculty outside of the classroom. How do these patterns shape students’ perceived growth or benefit from their interactions with faculty outside of the classroom? We turn to Table 4 to address this question.

**Table 4** Ordinary least squares regression predicting growth from outside of class interactions

	Growth from Outside Interactions				
	Model 1	Model 2	Model 3	Model 4	Model 5
Frequency of Outside Interactions	–	.58**	–	–	.28**
Importance of Outside Interactions	–	–	.58**	–	.12*
Comfort with Outside Interactions	–	–	–	.60**	.54**
Race					
White (ref.)	–	–	–	–	–
Black	.01	–.01	–.01	–.17	–.17
Hispanic	–.09	–.11	–.12	–.08	–.10
Asian	–.01	–.01	.02	–.02	–.01
Other	.20	.19	.14	.19	.17
Multiple race	.01	.03	.03	–.07	–.05
Prefer not to report	–.08	–.05	–.18	–.09	.07
Gender					
Male (ref.)	–	–	–	–	–
Female	–.05	–.04	–.06	.04	.03
Other	–.22	–.12	–.19	–.10	–.06
Prefer not to report	.16	.07	.15	.11	.07
Sexual Identity					
Heterosexual (ref.)	–	–	–	–	–
Non-heterosexual	.04	.07	.05	.26**	.26**
Disability Status					
Not disabled (ref.)	–	–	–	–	–
Disabled	.05	.05	.03	.01	.01
Military Status					
Not current or former military (ref.)	–	–	–	–	–
Current or former military	–.30	–.24	–.40**	.05	.02
Class Level	.03	–.01	.04	.04	.02
Full-time Student	.10	.05	.06	.08	.05
Cumulative GPA	.17**	.16**	.15**	.04	.04
College					
Liberal Arts (ref.)	–	–	–	–	–
Science	–.20**	–.16**	–.18**	.01	.02
Residence					
On campus (ref.)	–	–	–	–	–
Walking distance	.08	.09	.06	.08	.08
Farther than walking	.09	.11	.08	.05	.06
Other	–.26	–.20	–.25	–.19	–.17
Parental Education	.06**	.05**	.05**	.03	.02
Adjusted R-squared	.03	.16	.13	.44	.48

Note: N = 953; \* $p < .05$  \*\* $p < .01$

Table 4 presents ordinary least squares regression models examining students' reported growth from interacting with faculty outside of the classroom. Model 1 examines patterns across the demographic and educational variables alone. We did not find any baseline differences in reported growth from faculty interactions outside of the classroom across race and ethnicity, gender, sexual orientation, disability status, or military status. However, we note that the military coefficient approaches significance and suggests that military students reported less growth from these interactions. Overall, though, this model seems to show that despite their relative lack of comfort with interacting with faculty outside of the classroom, women, sexual minority students, and military students did not report less growth from these interactions. It could also mean that if we were to account for their lack of comfort, which Table 2 showed to be positively associated with growth, these groups might actually report greater growth from these interactions. That is, their lack of comfort could be suppressing potential differences in growth.

To examine differences in perceived growth net of the importance, frequency, and comfort measures, we turn to models 2 through 6. Model 2 predicted growth while controlling for the frequency of interactions. We found that frequency of interactions with faculty outside of the classroom is a significant positive predictor of perceived growth from those interactions. Otherwise, the results in this model mirrored those in Model 1, which is not entirely surprising given the lack of significant differences seen in Table 3 when examining the frequency outcome.

Model 3 predicted growth while controlling for students' ratings of the importance of faculty interactions outside of the classroom. Again, we found that these ratings are significantly and positively associated with the perceived growth from such interactions. The only other change seen in this model compared to Model 1 is that the indicator for military students was significant, indicating that military students reported less growth from faculty interactions than students without military experience.

Model 4 predicted growth while controlling for the comfort measure. Here we found some more substantial changes relative to Model 1, which reflects the more substantial differences seen in students' comfort with interacting with faculty outside of the classroom seen in Table 3. First, net of comfort with such interactions, non-heterosexual students actually reported significantly greater growth from interacting with faculty outside of the classroom as compared to heterosexual students. Second, we found that net of their comfort, military students reported no significant difference in growth from faculty interactions outside of the classroom as compared to non-military students. This compares to the significant or close-to-significant negative association seen in the previous models for the military student indicator. We also found that the previously significant and negative coefficient for students in the college of science became non-significant. This suggests that the difference between science students and liberal arts students in perceived growth from faculty interactions was largely explained by differences in comfort levels with these interactions.

Finally, Model 5 predicted the growth outcome net of the influence of perceived important of, frequency of, and comfort with interaction with faculty outside of the classroom. We found first that all three of these measures remain significant positive predictors of students' perceived growth from faculty interactions. As with Model 4, we found that net of these measures, non-heterosexual students reported significantly greater growth from interacting with faculty outside of the classroom. We found no significant differences across race and ethnicity, gender, disability status, or military status net of the importance, frequency, or comfort measures. Examining the partial  $\eta^2$  in this model to assess effect sizes indicates that the comfort measure has the largest effect, as it explains about 37% of the variance in growth

that is not explained by the other measures. Next, the frequency of interactions explains about 4% of the variance that is not explained by the other predictors.

## Discussion and Conclusion

This article examined how rates of, and growth from, faculty-student interaction are influenced by students' perceived costs and benefits of outside of class interaction. Drawing on social exchange theory, we posited that perceived importance would be positively related to frequency of informal interaction, and unrelated to growth. We also anticipated that discomfort would be negatively associated with both frequency of, and growth from, informal interaction. Finally, we expected that the perceived cost of such interactions, discomfort, would be higher among all under-represented students relative to other groups. We found that underrepresented groups were no different from others in terms of perceived importance and frequency of interacting with faculty outside of the classroom. While we found that women, LGBTQ students, and military students are significantly less comfortable with outside of class interaction with faculty, no differences emerged among racial minorities or students with disabilities. Once we account for lower levels of comfort among women, LGBTQ students, and military students, we find that they report growth similar to, or even greater than, other students.

These findings are important because they help expand our theoretical understanding of rates of, and growth from, interaction. We have argued that existing frameworks that seek to explain rates and outcomes of faculty-student interactions have emphasized social organizational dimensions of higher education to the exclusion of social-psychological dimensions of interactions. Our findings underscore the importance of examining cognitive dimensions of interaction—not by themselves but alongside social organizational characteristics. To our knowledge, this study is the first study of faculty-student interactions to quantitatively examine the explanatory power of social exchange theory. In this way, we build on qualitative research on mentoring among students and faculty of color that utilizes the social exchange framework (Griffin, 2012), a theory otherwise rarely used in higher education research (Cole & Griffin, 2013). Indeed, given the theory's explicit attention to how individuals in dyadic relationships measure the costs and benefits of interaction, social exchange theory is very applicable to the study of faculty-student interaction.

Our theoretical contribution represents an important but modest step forward in assessing the explanatory power of the social exchange framework in the study of faculty-student interactions. While we model the core concepts of the theory, an important step forward would be to develop studies that are able to examine both social psychological and structural dimensions of faculty-student interaction in more detail. Contemporary theorists, for example, frequently situate dyadic exchanges within larger social networks and examine how individuals' structural opportunities for exchange with different partners influence processes such as commitment and trust (Molm, 2006). Networks vary in terms of size and types of connection. Accordingly, future research would benefit from ego-network models that assess characteristics of the faculty to whom students are most likely turn to discuss an intellectual, career, or personal matter. Another important question is why more durable networks do not emerge from faculty-student interaction. While mentoring relationships are ideal typical networks through which students may continually access social capital (Smith, 2007), faculty-student interactions often appear more like episodic transactions of short duration. Research that

emphasizes both social networks and social psychology may be well-poised to understand why some networks are more durable than others.

These findings are also empirically important. Despite decades of research in this area—apart from the study of racial minorities—there has been a paucity of research on underrepresented, underserved, and disadvantaged groups (Cole & Griffin, 2013; Sax & Kim, 2017). This work broadens the empirical context of faculty-student interaction research to include not only racial minorities, but also LGBTQ students, students with disabilities, and student veterans. The results build on existing research on outside of class interactions among racial minorities by modeling social exchange mechanisms related to perceived costs and values of interaction. In the case of African American students, who represent less than 3% of the population at the university we studied, it could be that non-effects are attributed to a lack of statistical power driven by few survey participants. More broadly, the absence of differences across racial groups in our study could mean that minority students are successful at finding faculty who are in their own social categories (Cole & Griffin, 2013; McPherson, Smith-Lovin & Cook, 2001). Given the diverse institutional climates for race and ethnic minorities, future research would benefit from comparing social exchange mechanisms across community colleges, four-year universities, and research universities, among others.

We also build on a nascent line of research on faculty-student interactions among LGBTQ students. Drawing on a survey of 34 postsecondary institutions, Garvey and Inkelas (2012) found that lesbian, gay, and bisexual students were slightly more likely to indicate satisfaction with faculty interactions (of all types) than heterosexual students. We found, by contrast, that LGBTQ students were significantly less likely to indicate comfort interacting with faculty outside of the classroom. These mixed findings are likely a product of differences in our study designs. Garvey and Inkelas (2012), for example, focus on all types of interactions, including those with non-instructional staff in their measure, while we focus specifically on outside of class interactions with instructors. Given the distinct approaches of these studies, and the paucity of research in this area, there are extensive opportunities for future research on faculty-student interactions within the LGBTQ student community. The development of surveys that allow researchers to measure environmental characteristics such as inclusiveness and student outcomes such as retention and psychological well-being, for example, would greatly expand our understanding of how LGBTQ students are influenced by their interactions with faculty.

To our knowledge, this study presents the first analysis of faculty-student interactions among veterans and students with disabilities. While past research indicates that faculty misunderstand the needs and issues faced by students in these two groups (Greenbaum et al., 1995; DiRamio et al., 2008)—leading us to expect differences in their outside of class experiences relative to their comparison groups—differences only emerged among student-veterans, who are more likely to experience discomfort interacting with faculty outside of the classroom compared to other students. An important next step in understanding the experiences of student veterans would be to include measures of political ideology and perceived political climate at a respondent's university. Student veterans are highly diverse politically (Lighthall, 2012), but discomfort may be specific to conservative students who perceive faculty or the campus more broadly as liberal (Osborne, 2014). With respect to students with disabilities, our measure did not capture whether impairments stem from cognitive, physical, sensory, or other categories of disabilities. Future research would benefit from more detailed measures of disability, given that the nature or severity of a disability may influence patterns of interaction.



Like other survey research on faculty-student interactions, our analysis was unable to distinguish between part-time and full-time faculty. This is important because contingent and full-time faculty have differing levels of availability to students. We found that class level is associated with increased frequency of informal interaction. If one assumes that upper division courses are more likely to be taught by full-time faculty, this finding could be driven by greater availability of full-time faculty relative to adjuncts and other part-time instructors. One way to address this limitation would be to utilize survey questions that distinguish between interactions with different categories of instructors, but students may not reliably know who is part-time or full-time. Research by Jaeger and Hinz (2008) on the effects of exposure to part-time faculty on retention suggests another approach in which researchers could pair survey data on faculty-student interaction with institutional level data measuring the allocation of a student's credit hours across different categories of instructors.

Finally, our results are also of practical importance. We found that that once models control for lower levels of comfort with outside of class faculty interaction, women, LGTBQ, and student veterans report similar or even greater growth resulting from such faculty interactions. Faculty and campuses could therefore enhance the returns from outside of class interactions through strategies that may assuage concerns of these groups. Ally campaigns, in which faculty develop in-depth understandings of LGBTQ students and post symbols indicating that they are supportive and trustworthy, are indicative of such a strategy. Given the importance of in-class practices to outside of class interactions, it is important to consider how signals of approachability during course sessions could address potential student discomfort (Cox et al., 2010). Simply encouraging students to visit outside of class, and encouraging faculty to be more proactive about meeting with students, may represent effective first steps toward increasing the frequency of, and student growth from, informal interactions.

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## Compliance with Ethical Standards

**Conflict of Interest** The authors declare that they have no conflict of interest.

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