12-2016

Development of a Student-Perspective Based Scale on Instructor Approachability

Xin Zhao
Utah State University

DEVELOPMENT OF A STUDENT-PERSPECTIVE BASED SCALE ON INSTRUCTOR APPROACHABILITY

by

Xin Zhao

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Psychology

Approved:

Scott C. Bates, Ph.D. Major Professor	Susan L. Crowley, Ph.D. Committee Member
Renee Galliher, Ph.D. Committee Member	Christopher Johnson, Ph.D. Committee Member
Troy E. Beckert, Ph.D. Committee Member	Mark R. McLellan, Ph.D. Vice President for Research and Dean of the School of Graduate Studies

UTAH STATE UNIVERSITY
Logan, Utah

2016

ABSTRACT

Development of a Student-Perspective Based Scale on Instructor Approachability

by

Xin Zhao, Doctor of Philosophy

Utah State University, 2016

Major Professor: Scott Bates, Ph.D.
Department: Psychology

Students respond to instructor characteristics. Instructor approachability is one such characteristic that is often discussed yet inconsistently defined in the literature. The purpose of this study was to construct and validate a new measure, the *Instructor Approachability Scale*. The present study used a rationally derived process to generate a list of items that are representative of instructor approachability. Factor analysis was conducted to establish psychometrics for the scale. Regression analyses were then conducted to examine the impact of instructor approachability on several outcomes, including students' help-seeking attitudes, satisfaction with the course, and mastery of course content. Several significant main effects were detected, indicating that instructor approachability impacted: help-seeking attitudes and satisfaction with the course. While instructor approachability was not significant in predicting student learning outcome directly, it was indirectly predictive through help-seeking attitude, which suggests that the instructor can enable student access to resources, but students are ultimately responsible

in translating the resources into results. These findings and implications are also discussed.

(106 pages)

PUBLIC ABSTRACT

Development of a Student-Perspective Based Scale on Instructor Approachability

Xin Zhao

The purpose of this study was to develop a measure that captures the concept of instructor approachability. Instructor approachability has often been discussed in the literature as an important concept when discussing other instructor characteristics. The current study attempted to focus on understanding what instructor approachability is, and predicting how instructor approachability is linked to other important aspects of a college classroom. Based on the measure created, *Instructor Approachability Scale*, the research attempted to understand how it influences likeliness that students would ask the instructor for help, level of satisfaction students experience attending the class, and grade students obtain in the class. The hypothesis was that when an instructor appears to be more approachable to students, students will response positively in many different ways. The results suggested that instructor approachability increases the likeliness for students to ask for help, and increases level of satisfaction of the class. In addition, when students are more likely to ask for help from the instructor, students tend to obtain better grades in the class, even though instructor approachability is not directly related to student grades. This final finding suggests that instructors can play an important role in encouraging students to seek help, but students ultimately decide how to use resources to increase class performance.

ACKNOWLEDGMENTS

I would like to thank my dissertation committee, Dr. Susan Crowley, Dr. Renee Galliher, Dr. Christopher Johnson, and Dr. Troy Beckert, for their undivided attention and guidance over these last few years. I would like to especially thank Dr. Scott Bates as my chair, mentor, and friend. He provided continuous feedback and encouragement enabling me to become a better instructor, and, more importantly, to develop broad interests and an unconventional approach to a graduate experience filled with passion and self-actualization.

I would like to thank Dr. Donna Gilbertson, my thesis chair, for guiding me toward the path of research and providing continuous emotional support over the years. I would like to thank Dr. Carolyn Barcus, Dr. Yolanda Flores Niemann, Dr. Gayle Morse, and Dr. Melanie Domenech-Rodriguez, who facilitated a culturally sensitive environment for me to grow and flourish in my own way. I would like to thank Dr. Michael Twohig, Dr. Renee Galliher, Dr. Tera Lensegrav-Benson, Dr. LuAnn Helms, Dr. Chris Chapman, Dr. Cindy Bruns, Rhonda McKinney, Dr. Carolyn Cleveland, and Dr. Laura Dixon, who helped me learn the ropes of the profession. I would also like to thank Dr. Peter Kranz, who provided financial assistance, mentorship, and friendship over many years.

I would like to thank my wife 喬卉, for her unconditional support through rain and shine. I would like to thank my mother, who provided inspiration and hope through her own path obtaining a Ph.D. I would like to thank my father, as the backbone of our family, who encouraged and supported me every step of the way. 我的未來因為你們而變得更美好。Last, I would like to dedicate this dissertation to my grandparents in

China: 感謝我的爺爺，奶奶。感謝你們對我一生的教育和呵護。從小就對我灌述了學習的重要性，還堅定的鼓勵著我對知識的追求。None of this would have been possible without you.

Xin Zhao

CONTENTS

Page

LIST OF TABLES

CHAPTER I

STATEMENT OF PROBLEM

Earning a college degree has advantages. People who have college degrees earn higher incomes than those who do not. For example, individuals with bachelor's degrees make 84% more money than those with only high school diplomas (Carnevale, Rose, & Cheah, 2011). College graduates are also more likely to be promoted in their careers (Carnevale et al., 2011). Furthermore, during economic recessions, college graduates are less likely to lose their jobs and more likely to regain employment if lost (Carnevale, Jayasundera & Cheah, 2012). These economic benefits make sense because a college degree is commonly seen as a basic job qualification for desirable positions (London, 1992). In addition to economic value, obtaining a college degree increases life satisfaction. Many college graduates have more flexibility in choosing where they want to work and live, and more time for recreation with friends and family. As a result, they often report higher job satisfaction (Oreopoulos & Salvanes, 2009). In addition, attending college exposes individuals to different cultures and interesting subjects that are not easily accessible outside of a college environment. In their review of the extant literature, Pascarella and Terenzini (2005) noted that people who earn a college education are more likely to teach their children the value of education, thereby passing on the benefits to the next generation.

The many benefits associated with college education have led to a worldwide trend of higher college enrollment rates than ever before (Organisation for Economic Co-Operation and Development [OECD], 2011). In the U.S. alone, there was a 37% increase

in enrollment across universities between 2000 and 2010 (National Center for Education Statistics [NCES], 2011). However, while attending college is becoming popular, only 56% of students in the U.S. are able to graduate within 6 years (Symonds, Schwartz, & Ferguson, 2011). This number is even lower for some ethnic minority groups. By comparison, the 6-year graduation rate for Latinos was 49% (Lynch & Engle, 2010a). For African Americans it was 40% (Lynch & Engle, 2010b); and it was 36% for Native Americans (U.S. Department of Education, 1998). The number was 50% for first-generation college students (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011).

Traditionally, educators attributed college attrition to students lacking the necessary abilities, skills, or motivation. Tinto (2006) criticized this thinking for "blaming the victim." He argued that students do not have control over many factors related to early departure. The education field has since focused on the role of the environment and support systems in addressing issues of retention (Astin, 1975; Spady, 1971; Tinto, 1975). In the 21st century, colleges across the U.S. have dedicated more resources to help students. College personnel such as advisors, instructors, academic tutors and counselors are now more effective at helping struggling students. For these resources to truly benefit students in need, institutions must encourage students to seek out these resources by asking for help.

Instructors represent one of the most potentially accessible resources within the higher education system They have more contact with students on a consistent (if short term) basis than do student affairs professionals. However, students are sometimes uncomfortable approaching instructors for help. One explanation for their reluctance may

be norms in their peer groups against asking for help (Karabenick & Sharma, 1994). Another explanation may be that students perceive that instructors have limited time available to assist them outside of instruction (McCaslin & Good, 1996). Instructors can help students overcome these perceptions by initiating positive relationship building with students. Among pharmacy students, Payakachat et al. (2013) found that when the program faculty facilitated a positive environment, students felt they could establish good relationships with the faculty members. Furthermore, Jaasma and Koper (1999) found that when instructors initiated approachability (through behaviors such as use of humor, use of personal examples in class, addressing students by name, etc.), students were more likely to engage in help-seeking behaviors outside of the class time (for example, by increasing the frequency and length of office visits). Thus, encouraging students to approach instructors for help is the first step in facilitating student success.

In summary, there are multiple resources available to help students succeed in higher education. Instructors, for example, are potentially valuable access points because they have the most direct contact with students. In order to access available resources, students must be willing to seek help. Students may be ultimately responsible for initiating contact with instructors, but instructors can facilitate this process more effectively when they demonstrate certain characteristics that put students at ease. In the following literature review, I described these relationships between instructor characteristics and student learning.

CHAPTER II

REVIEW OF LITERATURE

Instructors may not realize the influence they have on facilitating student learning. It is important to understand how instructor characteristics may play a role in college learning. In the following paragraphs, I discussed the literature on the importance of student help-seeking attitude and instructor characteristics, including content knowledge versus instructor style. Finally, a review of the literature on instructor approachability is presented.

Help-Seeking

Help-seeking is defined in academic settings as the process of attempting to resolve a perplexity, or a state of puzzlement, which process may result in learning (Dillon, 1988, 1990). At the first step, an individual realizes there is a deficit in their personal knowledge that they address on their own through methods such as reading or conducting research online. In order to address this gap, the individual has to seek another individual for help. Sometimes this process is not easily embraced by the perplexed individual because he or she needs to accept some degree of incompetency, which could lead to demoralization about his or her own abilities (Karabenick & Dembo, 2011). For an individual to engage in help-seeking, he or she has to overcome the mental barrier and have a “degree of courage” (Flynn & Lake, 2008; Shapiro, 1983). College students believe in principle that they are in college to learn, but they do not always recognize that learning involves some level of acceptance that one is not good at

something. The natural consequence of not wanting to be perceived as weak or incompetent is to avoid seeking help as much as possible (Flynn & Lake, 2008; Shapiro, 1983).

While it is difficult to engage in help-seeking, the literature on higher education indicates that when students learn to seek help from an instructor, they are likely to perform better academically (e.g., Taplin, Yum, Jegede, Fan, & Chan, 2007; Williams & Takaku, 2011). For example, Kumrow (2007) found that nursing students who engaged in more help-seeking behaviors in web-based classes had better learning outcomes in the form of grades than those who did not. In a large sample (n = 712) of distance education courses, Taplin et al. looked at many educational outcome variables associated with high achieving and low achieving students. The sample was selected from students ranked among the top 5% and the bottom 5% over the course of four semesters. Using a 5-point Likert scale, students were asked to respond to statements such as "I believe that help-seeking is a good way to learn and grow." The study also looked at what kind of help students sought and from whom they sought it. Overall, Taplin et al. concluded that students who were more likely to seek help also tended to have higher academic achievements. Similarly, Williams and Takaku (2011) assessed the effect of help-seeking behaviors on learning outcomes over a longitudinal study. A large sample of students was tracked over 8 years through the college writing center (n = 671). The collected outcome data included participants' responses to: a self-efficacy scale, SAT scores, university-administered reading and writing placement scores, and grades in junior level writing courses. Williams and Takaku found that frequency of help-seeking was highly correlated

with positive performance in writing classes. Another study demonstrated that help-seeking had a positive effect on the academic performance of students who were trained to teach school. The study also found that frequent use of help-seeking strategies predicted higher learning satisfaction amongst these students (Hwang & Vrongistinos, 2002).

Help-seeking is seen as one of the most important strategies that can facilitate student's interest in learning, beyond objective academic performance measurements. Students in different fields (Biology, English, and Social Sciences) participated in a large study (n = 396) where the relationship between learning strategies and help-seeking behaviors was assessed (Karabenick & Knapp, 1991). The study used a pretest-posttest design with data collected at the beginning and end of an academic term to measure learning outcomes. The students were also asked to indicate the likelihood that they would engage in 19 different actions indicative of achievement-related and help-seeking related tendencies. Reponses were provided using a 7-point rating scale ranging from "not at all true of me" to "very true of me." Students who engaged in more help-seeking behaviors showed increased use of cognitive and metacognitive skills while studying, and this was predictive of positive learning outcomes. In another study, undergraduate honor students were trained on how to seek help and utilize college resources in a college success seminar (Holliday, 2014). At end of the year, these students reported higher first year satisfaction than before the training. The researchers also concluded that exposure to campus resources through help-seeking strategies was likely to activate students' motivation and increase their involvement in campus activities, both of which are

predictive of college persistence and retention (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Nelson, Dunn, Griggs, & Primavera, 1993).

Students benefit from effective help-seeking strategies, but they might not be fully aware of the reasons why help-seeking is important. Karabenick and Newman (2013) conceptualized help-seeking as an important self-regulatory strategy that constantly provides students with feedback about their performance; feedback that can be used to make adjustments (Zimmerman, 2008). Thus, academically successful students are more likely to engage in help-seeking behaviors because they view it as a process of fine tuning knowledge to reach a goal. By continuously seeking feedback through asking questions, academically successful students are able to engage in metacognition to make adaptive changes in learning environments and to readjust to the complexity of knowledge presented (Schunk & Zimmerman, 2012). It seems that academically "gifted" students often seem to thrive despite the style or difficulty of the instructor they encounter in class. More importantly, academically successful students are able to counteract negative feelings associated with asking for help (Pintrich & Zusho, 2002). They do this by accepting their incompetency as temporary and focusing on the long-term goal of mastery. These students might be more likely to engage in help-seeking strategies in order to avoid failure and thus alleviate the feelings of inadequacy long-term (Ames, 1983; Nadler, 1983). The evidence suggests that academic success is much aided by one's ability to develop learning skills such as help-seeking. Given the significance of help-seeking, it is important to understand which students are less likely to engage in help-seeking behaviors so that those students can be encouraged to implement this

strategy for success.

One factor that influences a student's likelihood of engaging in help-seeking behaviors is variability in help-seeking amongst demographic groups. While some literature suggests there are no sex differences in help-seeking behaviors in academic contexts (Ryan & Pintrich, 1997), substantial literature exists in support of the notion that male students are less likely to seek help than female students (e.g., Ryan, Hicks & Midgley, 1997; Taplin et al., 2007; Wimer & Levant, 2011). One possible explanation for this difference is related to social norms and masculinity. Higher masculine ideology is associated with higher avoidance of help-seeking attitude, and lower level of help-seeking behavior (Wimer & Levant, 2011). Asking for help implies that an individual does not have the answer, and becomes "dependent" on another individual to aid in the process of discovering the answer. Additionally, the first step of asking for help is the acceptance of incompetence (Karabenick & Dembo, 2011), which can be perceived as being weak. U.S. societal norms for men discourage individuals from engaging in activities that might be perceived as dependent or weak (Wimer & Levant, 2011). Regardless of the reason, the majority of the research literature on sex differences suggests that male students have a harder time seeking help than female students.

Another factor related to help-seeking is status as a first generation college student (FGCS). FGCS are students who reported that neither of their parents has obtained a bachelor's degree or above. Nationally, 32% of students attending college have self-identified as FGCS (Georgetown University Center on Education, 2012). While there is an abundance of literature on FGCS seeking mental health services in college

(e.g., Andrews, Bridges, & Gomez, 2013; Cheng, Kwan, & Sevig, 2013; Lawton, Gerdes, Haack, & Schneider, 2014), not much attention has been paid to academic help-seeking. In one qualitative study, Torres, Reiser, LePeau, Davis, and Ruder (2006) utilized in-depth interview techniques to explore first-generation Latino student experiences with various issues on campus, including academic help-seeking. They found first-generation Latino college students are unlikely to seek help from an authority figure such as the instructor. Participants in this study reported previous negative encounters with people in authority. They also indicated that they felt isolated. They often lacked awareness that they could seek help from their instructors, or expressed uncertainty about trusting their instructors to help them. As a Latino college student shared (M. Saunders & Serna, 2004, p. 9), "…when I got accepted to a 4-year university…I was scared of going away and being on my own [and] not having anyone there I was comfortable with or trustworthy that would help me." More research is needed to understand these barriers limiting first generation students' access to resources provided by the university.

In summary, help-seeking is an important piece of the puzzle for students to achieve academic success. However, help-seeking may be difficult because it makes some individuals feel incompetent (Karabenick & Dembo, 2011). The evidence suggests that students who are able to overcome feeling incompetent and then seek help were more likely to be academically successful. A substantial body of literature examines sex differences in help-seeking tendencies (e.g., Ryan & Pintrich, 1997; Taplin et al., 2007; Wimer & Levant, 2011), which suggest that females are more likely to seek help than male. Fewer studies have examined whether or not academic help-seeking is different for

first generation college students. The research shows that various student characteristics are associated with differences in learning strategies such as help-seeking. In addition to these internal factors, some studies have examined factors external to students, including instructor characteristics.

In the next few sections, I discussed the impact of instructor characteristics on student learning. More specifically, I outlined how instructor approachability is related to student help-seeking and learning success.

Instructor Characteristics

The influence of instructor characteristics on student learning is well documented in the literature (e.g., Benson et al., 2005; Kelley, Conant, & Smart, 1991; Marsh & Roche, 1997). Overall, instructor factors can be divided into two areas: instructors' content knowledge and instructors' teaching style or characteristics.

Historically, the literature on teaching has focused heavily on teachers' content knowledge; suggesting that a teacher needs to be knowledgeable in order to "transfer" their knowledge to students. Well-developed content knowledge alone was traditionally assumed to be sufficient for guiding students in the process of learning (e.g., Shulman, 1987). However, there is limited literature supporting instructor content knowledge as predictive of student learning. In fact, knowledgeable teachers are not necessarily equivalent to effective teachers. While having content knowledge might be important for an instructor to engage students effectively, a number of studies boldly claimed that instructor characteristics play a larger role than content knowledge, with this effect

observed across different subjects (Arbaugh, 2005; Drago, Peltier, & Sorensen, 2002; May & Short, 2003; Swan, 2003). One explanation is that the depth of an instructor's content knowledge is relatively stable once the instructor finishes training in graduate school, but an instructor's teaching style/characteristics can be refined over time as the instructor becomes better at teaching (Seiler & Seiler, 2002). A more plausible explanation is that students do not necessarily retain everything an instructor offers. Thus, despite the knowledge an instructor might have in a subject area, students often do not have the full capacity to absorb all the information "transferred" to them (Glenberg & Epstein, 1987; Svinicki, 2004). Facilitating student learning may take more than an instructor with a great deal of knowledge. It may take an instructor with a specific set of skills and characteristics that encourage effective learning. A discussion of those specific skills and characteristics follows.

Instructor characteristics encompass a broad range of personality traits and behaviors, including: use of language, gesture, tone of voice, lecture delivery, and even informal interactions outside of class (Harnish & Bridges, 2011; Harnish et al., 2011). Gruber et. al. (2012) conducted two studies (n = 104; n = 147) of instructor characteristics as perceived by students. The authors applied the Kano (1984) model (commonly used to rate customer satisfaction) in order to better understand how instructor characteristics relate with student satisfaction with a course. Students were presented with 19 attributes focusing on quality service in higher education (e.g., Voss, Gruber, & Szmigin, 2007) and asked how they would feel if each feature was present or not present in their instructor. For example, "If a professor possesses/does not possess

good communication skills (e.g., can tailor the message to best suit students' language abilities and preferences), how do you feel?" The study found a significant relationship between positive instructor characteristics and student satisfaction. The authors summarized some instructor characteristics desired by students, such as: instructor's expertise in other subject areas, variety of teaching methods applied, and instructor's ability to foster team work in class. These examples suggest that students care about and respond to how instructors present themselves in class, and expect the instructor to find ways to help them connect with the class material.

Koval (2013) claimed that many instructors do not pay attention to the importance of instructor characteristics when meeting students for the first time. Instead, these instructors focus too much on going over the details of the syllabus, possibly because they view the process of presenting the syllabus as tedious and boring, without being fully aware of its utility. However, students tend to pick up information about instructor's personality based on how the instructor presents the syllabus (McKeachie, 1986). They are likely to make inferences about the instructor's interpersonal style and approachability regarding teaching (DiClementi & Handelsman, 2005; Grunert, 1997). Koval (2013) also argued that students are often excited and attentive during first day of the class, and this is prime time to focus on engaging the students and build positive instructor-student relationships.

Faranda and Clarke (2004) found that when an instructor demonstrates positive characteristics with students in the beginning of the course, students feel a sense of connection and rapport with the instructor. When instructors build a positive relationship

with the students, the students are motivated to work harder, and obtain better grades. Previous research also showed that positive instructor characteristics not only enhance student educational outcomes, but also promote higher course evaluation for the instructor (Clayson, 2005; Delucchi, 2000; Pepe & Wang, 2012). When students feel connected to instructors, they are motivated to do well and they acknowledge their instructors for facilitating a supportive learning environment.

The study conducted above by Gruber et al. (2012) also pointed out the least desirable instructor characteristics rated by students, which are: unreliability with course structure (e.g., not having concrete deadlines and reading schedule) and disrespect towards students. This is consistent with previous research suggesting that students like to be taken seriously and treated with respect (Voss et al., 2007). For example, giving students flexibility with essay topics allows students to feel like they are in control of learning what is important to them from the class. Research also suggests that students dislike punitive instructors, because these instructors convey negativity in the class (Rubin, 1985; Slattery & Carlson, 2005). Negative attitudes exhibited by the instructor suggest that he or she will be constantly monitoring students for failure, and will penalize students harshly if they do not obey the rules. When students feel a sense of worry and hopelessness about the evaluation outcome of the class, they tend to react negatively towards the class and the learning process. On the other hand, successful instructors often utilize strategies to deflect and overlook the importance of content such as grading, to ease the pressure and avoid negativity in their presentation of the class (Thompson, 2007). A positive tone motivates students to anticipate positive learning outcome from the

course, rather than worrying about how their grades turn out (Slattery & Carlson, 2005). Clearly, instructor characteristics play an important role in influencing students' learning experience. One particularly salient instructor characteristics is instructor approachability, discussed below.

Instructor Approachability

Instructor approachability, though often discussed in the literature, is inconsistently defined (e.g., Filz & Gurung, 2013; Foster & Hermann, 2011; Hartnett, Römcke, & Yap, 2003; Mehrabian, 1971; Voss et al., 2007; Wilson, Ryan, & Pugh, 2010). The Merriam-Webster dictionary defines "approachable," as being "easy to talk to or deal with" and "able to be reached or approached: accessible." From this definition, instructor approachability means two things: (1) the ease and comfort students feel in communicating with the instructor, and (2) the availability of, and access to, the instructor. This understanding encompasses instructor traits such as friendliness, openness, accessibility, patience, and respect. Instructors who convey the opposite (a sense of discomfort, dislike, or avoidance of students) demonstrate a lack of approachability.

In the research literature, Hartnett et al. (2003) defined instructor approachability as a combination of two factors: instructor enthusiasm towards the students and objective delivery of the course materials consistent with achieving student goals. Alternatively, Mehrabian (1971) conceptualized instructor approachability as immediacy behaviors, which communicate "approach," a desire for physical and psychological closeness with students. Another study by Wilson et al. (2010) reported the development of a measure of

instructor-student relationship that includes a subscale on instructor approachability, yet the authors did not define what instructor approachability is. While instructor approachability is recognized as a component of instructor effectiveness, the literature often does not emphasize the important impact that approachability can have on students' learning experience. More research examining instructor approachability as it relates to learning outcomes is needed. What follows is a discussion of the research available to date.

Two studies concluded that students view instructor approachability characteristics as one of the most important factors in their experiences (Feldman, 1976; Sánchez, Pecino, Rodríguez, & Melero, 2011). In the 1970s, Feldman conducted a literature review synthesizing a large body of extant studies on how college students assess an instructor's effectiveness. Feldman looked at studies evaluating student feedback using traditional teaching evaluations as well as qualitative studies portraying participants' ideal instructors. In this literature review, he found traits similar to instructor approachability (friendliness, helpfulness, openness to others' opinion) were more frequently mentioned than traits describing instructor's perceived knowledge or intelligence (Feldman, 1976).

A more recent study confirms Feldman's findings. Sánchez et al. (2011) conducted a large sample qualitative survey study of 1,599 social science students in a Spanish university. Students were asked students to freely "write the most important characteristics that your ideal professor should have to perform the task of teaching at your college." Six experts then grouped these characteristics into different dimensions

measuring instructor characteristics (Osterlind, 1989). A profile for the ideal instructor was generated accordingly. Like Feldman, the authors found that students placed greater importance on instructor characteristics relating to approachability (e.g., having respectful manners, being understanding and open, easy to talk to). Content knowledge was less important.

The impact of instructor approachability goes beyond making an instructor appear likeable and competent in teaching. Approachability is key in students' successful engagement with course content. According to Ryan, Pintrich, and Midgley (2001), instructors are often able to control classroom social climate by modifying lecture content, timing, and other features, which can influence students' attitudes and behaviors toward the class. For example, Harnish and collaborators examined how manipulation of written language alone could alter students' perceptions of instructors and classes (Harnish & Bridge, 2011; Harnish et al., 2011). In one study, Harnish and Bridge manipulated a series of written messages used by the instructor on a syllabus to have more "warmth." They changed the language to focus on the positives of the class instead of the potential punishments, and give more details on the rationale of assignments. They found that mere perception of such attitude change in an instructor was enough to motivate students to do well, and students rated the instructor as more approachable.

On the other hand, instructors who are unapproachable, reflect negative attitudes, or display negligence towards students tend to decrease students' motivation to learn. Students with instructors like this are discouraged from seeking help. Behaviors such as disrespect towards students (Gruber et. al., 2012), or not taking students seriously (Voss

et al., 2007) produce immediate negative effects on the students. In some cases, students may feel that they will be constantly monitored for failure and will be penalized harshly if they do not follow the rules (Gruber et. al., 2012). Research also suggests that students dislike instructors who use punitive language (Rubin, 1985; Slattery & Carlson, 2005). When students come to class with a sense of wariness and hopelessness, they tend to react negatively. For example, Hartman-Hall and Haaga (2002) divided students into two groups to read vignettes of other students seeking help from a professor, which either received a receptive or dismissive reaction. They found that students were more willing to seek help from instructors appearing more approachable. Similarly, in a self-report survey across a sample of humanities, social science, and education students, participants reported less willingness to seek help from instructors who did not allow room for questions during lecture (Kozanitis, Desbiens, & Chouinard, 2007). Not welcoming questions projected lack of access to the instructor, an important aspect of approachability. It is clear that instructor approachability has the potential to impact student outcomes greatly. What is less clear is whether or not instructor approachability has the same impact across a variety of student groups.

One important gap in the literature on instructor approachability is a paucity of studies examining the importance of instructor approachability for historically underrepresented groups, such as ethnic minority students. Ethnic minority students are more likely to be FGCS, due to systematic barriers in access to education. Doolittle and Siudzinski (2010) assessed the content of 1,000 syllabi sampled from the internet using 26 criteria determined from the literature on recommended syllabus components. They

found that information related to course names, course numbers, professor names and course texts were commonly included; and information related to disabilities, missed work policy, and student support services were frequently omitted. This is problematic because many students, especially ethnic minorities and FGCS, do not fully grasp how such resources can impact their learning.

When instructors provide information on services and opportunities available, ethnic minority and FGCS students often benefit the most. Even though these issues are not directly related to the course content, taking some class time to discuss them demonstrates that the instructor cares about all students and wants them to do well (Doolittle & Siudzinski, 2010). Collins (1997) shared one study participants' example of how important it is that instructors communicate to students that they have equal opportunities in the classroom. The student shared that when he perceives the instructor as not invested in his well-being, he is less enthusiastic about the course and learning the materials in class. A simple but important gesture might make the difference in whether a subset of students in the class are included or excluded from full participation. More research is needed to understand the experiences of ethnic minority and first generation students in this area.

Another unanswered question in the extant literature is if and how men and women perceive instructor approachability differently. The findings for sex differences are mixed, with some researchers suggesting there is a difference (e.g., McGoldrick & Schuhmann, 2002), and others suggesting there is not (e.g., Patton, 1999). K. T. Saunders and Saunders (1999) proposed an interesting theory about sex differences in classrooms,

which is that male students rate male instructors more favorably, and female students rate female instructors more favorably. The belief is that men and women might be looking for different characteristics in instruction and communication, thus are more favorable towards their own sex. The results did not support their hypothesis. More studies should be conducted to understand sex differences in perceptions of instructor approachability.

Lastly, instructors who demonstrate approachability seem to understand the importance of relationship building. They find ways to encourage students to seek help in order to achieve academic success. Singham (2005) found that students' default expectation toward a classroom is negative because there is an implied sense that the instructors do not care about student learning, and only care about making rules that could potentially punish them. If instructors are able to demonstrate minimal approachability, in gestures such as tone of communication, then students may be more receptive to learning. One such strategy suggested by Singham was to explain that most students will not have problems with rules to ease their fear for violating rules outlined in the syllabus. Furthermore, if instructors take the extra step to explain the rationale of rules in relation to helping students achieve success and provide reasons for the rule's existence, then students view instructors as more approachable (Collins, 1997; Nilson, 1998). Instructors who are strict sometimes struggle with balancing warmth towards students and holding students accountable for their education. There are ways to convey a sense of approachability and yet still hold students accountable with proper workload. Singham (2005) found that even for the instructors who minimize rules, if the instructor built trust with the students and properly manages that trust with encouragement, students

will not slack off on expected course load. For example, the instructors can explain that late assignments will not be accepted, but students are welcomed and encouraged to schedule office hours with the instructor to seek help before the due date.

Measuring "Approachability"

As mentioned above, instructor approachability is often used but poorly defined in the literature. Many different researchers have incorporated or discussed the importance of instructor approachability in their studies. Instructor approachability is addressed frequently in research from the 1970s, but fell out of popularity before resurfacing around end of the century. Over time, the understanding of instructor-student relationship has increased in complexity and nuance, as studies attempted to tease out important concepts that are predictive of learning process and outcomes. These studies are summarized in the paragraphs below.

Instructor approachability first appeared in recent literature in the 1970s (e.g., Lam & Wong, 1974; Marsh, Fleiner, & Thomas, 1975). Lam and Wong examined factors impacting the attendance of seventy adult learners enrolled in non-credit summer courses at Chinese University of Hong Kong. A 17-item questionnaire was given to students to assess their perceptions of the course content and the structure of the class. Approachability was conceptualized as one component of class structure, represented through items assessing the extent of interpersonal interaction between the instructor and students. The correlational analysis found that class structure components were all positively and significantly related to student attendance. The authors found that degree of course understanding, need-fulfillment, approachability of the instructor, number of

informal and formal interactions, and sociability of classmates all played a role. F-tests from step-wise multiple linear regression did not find any predictive relationships. Psychometric data were not reported in the study. While this study was a positive step toward exploring the importance of instructor approachability, the analytical method was simplistic and conclusions were linear. Similar to the present study, Lam and Wong were interested in how instructor approachability can influence student behaviors. By using correlational analysis, they concluded that instructor approachability was positively related to adult learners' attendance.

Another study at the time (Marsh et al., 1975) placed greater emphasis on the role that students' evaluation of instructors played in predicting student performance. Marsh et al. assessed whether student evaluation is useful in capturing quality of instruction and providing useful feedback to instructors. The un published measure consisted of 46 evaluation items developed by the Evaluation of Instruction Program at University of California, Los Angeles. Over two academic quarters, 520 students (72% of the class) completed the instrument. A principle components reduction method was applied, which yielded a seven factor orthogonal solution. The fifth factor was characterized as "instructor approachability:" defined by the researchers as the value of informal interaction with the instructor outside of class, and the ease in approaching the instructor for help. Cronbach's alpha was not reported. They concluded that the subconstruct of approachability was predictive of students' evaluation of their instructors, but was not related to final examination grades. It is worth noting that the authors did not view instructor-student relationship to be as important as the instructor's content knowledge.

Instructor approachability next appeared in the instructor-student relationship research after the year 2000 (e.g., Harnish & Bridges, 2011; Richmond, McCrosky & Johnson, 2003; Wilson et al., 2010). The literature at this time was characterized by an increased appreciation for the importance of instructor-student relationship as compared to instructor content knowledge. Richmond et al. (2003) created a measure in attempt to understand how nonverbal instructor behaviors might influence student perception of the class. Called the Nonverbal Immediacy Scale-Other (NIS-O), the 26-item (13 positively worded, 13 negatively worded) measure uses a 5-point Likert scale to capture a range of instructor characteristics including instructor approachability and warmth. The authors reported a Cronbach alpha of .92 and predictive validity of .95 for learning outcomes in educational context. The limitation of NIS-O is that it focused on observable instructor behaviors only, and neglected the implicit dimension of students' perceptions, such as a sense that the "instructor seemed friendly."

Building upon NIS-O, the *Professor-Student Rapport Scale* (Wilson et al., 2010) similarly incorporated student perception, and addressed the importance of instructor-student relationships. The researchers recruited 51 upper level undergraduates and asked them to create a list of items to measure professor-student relationship. The authors then tested these items with 195 other undergraduate students. This scale includes 34 items that are mostly positively worded, assessed by 5-point Likert scale, with higher numbers indicating stronger perceptions of instructor-student rapport. Sample items included: "My professor and I get along," and "My professor knows me by name." Items were included in the measure if they met a minimal loading of .50 on the primary factor. Cronbach's

alpha for the scale was .96. The measure built upon similar NIS-O sub-constructs of professor friendliness (r = .64), flexibility (r = .45), and nonverbal behaviors (r = .70). Hierarchical linear regression revealed that this measure had strong predictive power for student attitudes towards their professor and course, as well as their motivation, perceived learning, and self-reported grades. The *Professor-Student Rapport Scale* recognizes the nuance of instructor-student relationships and takes into consideration how such relationships impact classroom climate and learning outcomes. However, the ability to elicit attitude and behavior change in *rapport* is indirect and implied. The present study has a more specific focus on how such relationships can elicit change in student attitudes and behaviors. The construction of instructor approachability incorporates the importance of "drawing" students towards the instructor for beneficial behaviors such as asking for help.

More recently, Harnish and Bridges (2011) studied the importance of instructor warmth in predicting student learning. They contended that "It is not uncommon for students to complain that faculty are unapproachable, while faculty complain that students are not engaged. Such perceptions, especially when formed at the start of a semester, can impact what students learn and how instructors teach; therefore, it is critical that these perceptions are prevented if a course is to be successful" (p. 1). The authors identified a construct termed the "approachability index." They measured instructors' approachability as a function of the way they presented the syllabus to students. They found that, when compared with a control group using a standard syllabus, students presented with a syllabus written in a friendly way perceived instructors as warmer, more

approachable, and motivated to teach the course.

The five items developed by Harnish and Bridges (2011) to measure instructor approachability include: (a) “The instructor encourages students to ask questions and express their knowledge,” (b) “The instructor is available to assist students,” (c) “The instructor provides constructive feed-back on students’ work that helps students improve,” (d) “The instructor clearly communicates expectations for student achievement,” and (e) “The instructor clearly communicates the importance of the subject matter.” These 5 items were presented on a 5-point Likert scale. The combined subscale titled the “Approachability Index” had a Cronbach’s alpha of .82. Harnish and Bridge’s study confirmed the importance of instructor-student relationship building. The present study extends this research with an examination of the factors that impact learning outcomes by eliciting attitude change in students. The present study also moves away from Harnish and Bridge’s focus primarily on students’ perception of written material such as the syllabus, instead examining the role of in-person interaction with the instructor.

As described above, several researchers have developed similar items and measurements related to instructor approachability attempting to capture instructor characteristics. While instructor approachability seems to be recognized as an important construct in predicting learning outcomes, research is needed to refine the measurement of instructor approachability specifically. Whereas previous measures were more commonly focused on instructor-student relationships, the present measure of approachability augments this understanding by capturing an additional dimension of the

interactions: the underlying student attitudes toward the instructor that will elicit potential positive learning behaviors such as help-seeking.

Summary

Student help-seeking attitudes and instructor approachability are two related factors contributing to student learning. Students are receptive to instructor attitudes and behaviors, and change their own learning attitude accordingly (Faranda & Clarke, 2004). When instructors appear dismissive and unapproachable, students become less motivated, and are less likely to seek needed help. This effect is more profound for certain demographic groups (Brown & Dobbins, 2004; Collins, 1997). Students' positive perceptions of the instructor are predictive of increased help-seeking attitude and positive learning outcomes (Kozanitis et al., 2007). More research is needed to improve the measurement of instructor approachability as a multidimensional construct. The goal of the present study is to fill this gap in the literature through the development of a measurement capturing the importance of instructor approachability. The present study will assess the relationship between instructor approachability and students' learning outcomes, including their help seeking attitudes.

Research Questions

RQ1: How is instructor approachability defined as a construct?

RQ2: What are the sex differences in outcome variables?

RQ3: What are the first generation status differences in observed variables?

RQ4: How is instructor approachability related to: (a) student's help-seeking attitudes, (b) students' course satisfaction, and (c) Objective course grades?

CHAPTER III

METHODOLOGY

Data collection occurred in three phases consisting of: item development, item rating and item testing. The study was approved by Utah State University Institutional Review Board (USU Assurance: FWA#00003308) and adhered to the ethical standards of the university IRB as well as the American Psychological Association (APA). In Phase I of the study, I formed three focus groups consisting upper-level undergraduate psychology students with diverse demographic characteristics (e.g., sex, first generation status), for the purpose of brainstorming items to measure instructor approachability. In Phase II, I recruited upper-level psychology students to evaluate the items generated in Phase I. Their feedback was collected through the online participation system SONA. It was implemented to reduce the overall item number using a content validity ratio method (Lawshe, 1975). In Phase III, I recruited introductory psychology students and asked them to complete measures on instructor approachability, help-seeking attitudes, and class satisfaction. Learning outcomes in the form of objective course grades were later obtained through the Office of the Registrar at Utah State University. Course credits were awarded to participants at each stage of participation.

Table 1 summarizes the key components of each data collection phase. Each phase of the study is described in detail in the following sections. Phase I and Phase II will address RQ1. Phase III will address RQ2-RQ6.

Table 1

Summary of Phases of the Study

Categories	Phase I	Phase II	Phase III
Class	Upper level PSY	Upper level PSY	Intro PSY
Sample size	3 groups	36	56
Format	Focus groups	Online survey	Online survey
Measures	N/A	Approachability items	Outcome measures
Result	A list of items on instructor approachability	An "essential" list of items on instructor approachability	Development of *Instructor Approachability Scale*

Phase I: Item Development

Participants

I recruited upper level psychology students to brainstorm potential items that would constitute the measurements to be developed. As upper level psychology classes often encourage students to participate in research experiments, students who volunteered were rewarded with research/class credits. Consultation with the Utah State University Office of Analysis, Assessment and Accreditation (AAA) was conducted to ensure representation of FGCS in the student population. According to AAA data as of fall 2014, Utah State University enrolled 17%, or 4,626 FGCS. This number was sufficiently large to capture meaningful representation of FGCS. With the help of an undergraduate assistant, I contacted two instructors teaching research methods and psychology statistics classes and recruited students from these classes to participate for course credit. Recruitment started at the beginning of both classes by announcing the study in class and distributing the letter of information. For students electing to participate, a sign-up sheet

was distributed asking students to list their name and email address for scheduling purposes. Fifteen people initially signed up, but four people reported scheduling conflicts and one person did not show up for the scheduled time, resulting in a total sample of 10 participants.

Procedures

Phase I of the study was conducted using a focus group format. I divided 10 participants into three groups based on demographics and scheduling preferences. Group 1 consisted of four women (0 FGCS). Group 2 consisted of three men (1 FGCS), and group 3 consisted of three FGCS (all women). Eight participants reported their ethnicity as White, and two participants reported Latina (both were women). I facilitated group 1 alone, and facilitated in conjunction with the assistant on groups 2 and 3.

At the beginning of each group, one of the facilitators distributed one blank piece of paper to each participant. Then, we explained that this was a study about instructor approachability. Participants were then asked to independently brainstorm for the next 20 minutes based on their experience with past instructors. They were instructed to "think of characteristics that indicate instructor approachability or lack thereof, based on your experiences in previous classes." In order to allow for broader capture of the definition, no further clarification was provided. Participants were asked to write ideas down independently in order to encourage a wider variety of answers and to avoid collusion and groupthink at the initial stage of item generation.

After 20 minutes, the facilitator(s) opened up a discussion about ideas written by the participants. This process focused on clarifying ideas with similar content and

encouraging participants to add to their list as they thought of more ideas during the discussion. The discussion continued until no participant had any additional unique ideas to contribute. The facilitator(s) took notes during the session while participants shared with the group.

At end of the discussion, I collected all the written responses and recorded all the unique ideas. Ideas were retained conservatively, for example if two ideas used the same keywords, they were combined into a single item (e.g., I prefer instructors who introduce themselves; instructors introduce themselves in the beginning of the class). If the relationship between two ideas were unclear, both ideas were retained. A single statement was developed to capture each idea. A total of 55 statements were generated and evaluated in Phase II.

Phase II: Item Rating

Participants

In Phase II, I recruited upper level psychology students to act as "student experts" evaluating the representativeness of the ideas generated in Phase I. This stage of the study was conducted in the semester after Phase I in order to target a new pool of participants. The study was posted on the SONA online participating system, restricting participation to only students currently enrolled in research methods and advanced statistics classes in psychology. In addition, a screening question was used to ensure that no Phase I participants were repeated in Phase II. Students who signed up for participation received class credit upon completion of the tasks. Thirty-six students enrolled in upper level

psychology participated in this phase of the study, including: 8 men and 28 women; 30 White, 1 African American, 1 Asian American and 4 Latino American. Fourteen (14) participants reported being FGCS.

Measures

Participants were presented the full 55-item list of unique ideas generated in Phase I.

Procedures

The goal of this phase was to evaluate whether items generated in phase I represented essential characteristics of instructor approachability. Items were presented in the form of a survey posted online, and presented in groups of 5 or 6 items per page in order to reduce cognitive attention demand of the participants. Participants were asked to respond online at their own convenience, individually evaluating all items presented. They were presented with the following statement at the beginning of the survey: "The researchers are trying to create a list of items to measure the concept of 'instructor approachability.'" Then each item group started with the question: "How essential is the statement in helping us to evaluate whether or not an instructor is approachable?" Participants had to choose between one of the three responses based on Lawshe's (1975) reduction method: (a) essential, (b) useful but not essential, or (c) not necessary. Once data collection was concluded, responses were digitally recorded and organized in a spreadsheet.

To generate a final list of items rated by "student experts," Lawshe's (1975)

content validity ratio (CVR) was calculated. CVR operationally defines competence based on the judgment of experts, or "those who 'know the job'" (Lawshe, 1975, p. 566)." In this case, undergraduate students enrolled in higher-level psychology courses qualified as subject experts. Lawshe's formula is: CVR = [(E – N / 2) / (N/2)], whereas E is the number of raters who determined the item as essential, N is the total number of raters. The CVR is negative on an item when less than half of the raters deem it "essential," and the CVR value is between 0-1 when more than half the raters deem it "essential." Higher values thus indicate a higher degree of content validity. Based on the minimal value required and total number of panelists involved, a "cutoff" number of raters have to rate a certain item to be "essential" in order to retain the item. The minimum number of participants needed for an item to be retained are provided below (Lawshe, 1975; see Table 2). A final list of 19 statements was retained.

Table 2

Minimum Values of Content Validity Ratio

Panelists	Minimum value
10	.62
11	.59
12	.56
13	.54
14	.51
15	.49
20	.42
25	.37
30	.33

Phase III: Item Testing

Participants

I recruited Phase III participants from two introductory psychology classes (about 250 students registered in each class). Given that introductory psychology is required prior enrolling in any other psychology class, the participants should not have participated in any prior groups of the present study. Inclusion criteria were set in SONA to limit individuals to the targeted recruiting classes. This phase of the study occurred in the third month of the semester following Phase II, so participants had adequate time to form an impression of their instructor.

My graduate advisor and I each presented the study to one section of the introductory class to recruit student participants. It was announced that We were conducting a study to understand how instructor approachability characteristics influence student help-seeking attitudes and learning outcomes. Students who were interested in participating were asked to sign an informed consent. They also signed a release of information that permitted me to obtain end-of-semester grades from the class to be used as objective learning outcome data (Appendix A). The Utah State University Office of the Registrar reviewed the release of information form prior to data collection to confirm it was compliant with relevant laws and regulations regarding student academic confidentiality.

Students also had the option to sign up for the study at a later time through SONA, where they then received instructions to contact me by email. Consent forms were distributed to those students via email; and they were asked to print, sign, and return

to me electronically in pdf or jpeg format. A small number of students proceeded with the survey without completing the consent forms. Upon consultation with IRB, I made two follow-up attempts to obtain their written consent. Individual responses were excluded from the study if consent could not be obtained from the given student. Out of 64 participants signed up on SONA, 56 participants completed all the required informed consent documents, which resulted in a final sample size of 56, including 20 from the first section, and 36 from the second section of introductory psychology.

In the present sample of 56 participants, "Latino" was endorsed 4 times. Of the other 52 participants, "White" was endorsed 51 times, the one other response was "prefer not to answer." Fourteen (14) participants endorsed "man" and 42 endorsed "woman." Fifteen (15) students were considered FGCS because they indicated that neither of their parents completed a bachelor's degree. A 2x2 table between sex and FGCS was generate to demonstrate more specific distribution below in Table 3.

Measures

The Instructor Approachability Scale presented items generated in previous phases of this study, and asked participants to rate impressions of their introductory

Table 3

Sex and First Generation Status Distribution

Categories	Men	Women	Total
FGCS	5	10	15
Non FGCS	9	32	41
Total	14	42	56

psychology instructor based on instructor approachability characteristics. All items were formatted to 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Please see Appendix B for the instrument.

Help-seeking attitude items consisted of six items composing two subscales that were extracted from Karabenick's (2001, 2002) original 107-item, 17-subscale unpublished instrument. The instrument was designed to measure help-seeking, motivation, achievement goals, and learning strategies, with 5-point Likert scale ranging from "not at all true" to "completely true." The Cronbach's alphas for all subscales ranged from .62 to .94. As the scale encompasses a broader scope than the current study warrants, only two subscales relevant to help-seeking behaviors were included. Please see Appendix C for this instrument.

The following teaching evaluation items were adopted from a similar study on student-instructor relationships (Wilson et al., 2010). Participants were asked to "rate the course as a whole" from 1 (poor) to 5 (excellent). They responded to the statement "Overall, the instructor is an excellent teacher," using a scale from 1 (strongly disagree) to 5 (strongly agree). They also rated their agreement with: "The instructor motivates me to do my best work" using the same scale. They indicated how much they have learned in the class from 1 (very little) to 5 (a great deal). Please see Appendix D for this instrument.

I reached out to the university registrar and obtained final semester grades of students who agreed to release their grades for the study.

Procedures

After obtaining students' written permission, students were asked in class as well as reminded through follow-up emails to complete a set of surveys through SONA. The surveys included three instruments discussed above: *Instructor Approachability Scale* (present study, 2016), help-seeking attitude items (Karabenick, 2001, 2002), teaching evaluation items (Wilson et al., 2010); and demographic information including: sex, ethnicity, and parental education level (see Appendix E for these items). Students' course grades were also collected at end of the semester from the registrar.

Analytic Strategy

Nineteen items supporting the construct of instructor approachability were derived through focus group and item reduction techniques. The present study utilized factor analysis to evaluate the appropriateness of these 19 observed items in measuring the latent factor: instructor approachability. According to Nunnally and Bernstein (1994, pp. 450-451), there are two ways to conduct factor analysis: exploratory and confirmatory. Exploratory procedure is data driven, assuming no prior understanding of any factors in the data. While researchers might have some "hunch" about possible factors, the main purpose is to determine whether there are measureable factors. In contrast, confirmatory procedure is theory driven, focusing on previously constructed items based on the given theory, and seeks to confirm how these items fit for the existing factor. Based on Nunnally and Bernstein's explanation above, confirmatory factor analysis (CFA) was a more appropriate method to evaluate the given data. The statistical goal of CFA is to test whether the measured items are consistent with the understanding

of theoretical concept of instructor approachability. CFA relies on using a hypothesized model to estimate the population covariance matrix that is comparable with the observed covariance matrix (Schreiber, Nora, Stage, Barlow, & King, 2006).

Sample size. There are numerous suggested criteria for minimum sample sizes needed for factor analysis (for example, see Comrey & Lee, 1992; Cudeck & O'Dell 1994; Gorsuch, 1983); but these recommendations do not have consistent empirical basis. While literature suggests that it is always best to obtain a large sample, small sample size (30 or 50) can be acceptable if the model is simpler, items have high loading, the number of factors is low, and the number of indicators is high (deWinter, Dodou, & Wieringa, 2009; Sideridis, Simos, Papanicolaou, & Fletcher, 2014; Wolf, Harrington, Clark, & Miller, 2013). At first glance, it seems counterintuitive that a higher number of indicators results in acceptability of a smaller sample size. After all, traditional methods suggest either at least 5 or 10 observations are needed per variable, which means that the number of observations are directly proportional to number of observations (Bentler & Chou, 1987). While this makes sense conceptually, especially when large number of observations can be obtained, Monte Carlo studies have found that smaller sample size can benefit from inversely higher number of indicators, contradicting traditional rules-of-thumb (e.g., Marsh & Hau, 2004; Marsh, Hau, Balla, & Grayson, 1998; Wolf et al., 2013). For example, Wolf et al. conducted a Monte Carlo study to determine the minimal sample size needed while satisfying three criteria: adequate statistical power (>80%, alpha = .05 for all parameters), low bias of mean parameter estimates (<5%), and a nearly perfect convergence rate (~100%). The study looked at simple models with just one

factor, few indicators (3 or 4, 6, or 8) and high loadings (.5, .65, or .8). The results suggested that few indicators required a larger sample size relative to a model with more indicators; however, this effect plateaued at 8 indicators (see Table 4). Marsh et al. summarized the empirical support for this phenomenon:

> Rather than increasing linearly with number of estimated parameters or number of variables, we found that sample size requirements actually decreased when the number of indicators of a factor increased. This was likely a result of the increase in information available for use in solving the simultaneous regression equations. This effect was particularly evident in moving from three or four indicators to six, but less so when transitioning from six to eight indicators. This is consistent with prior work suggesting that increasing the number of indicators per factor may be one way to compensate for an overall small sample size and preserve statistical power. (p. 217)

Data normality. I expected that the instructor approachability data would be negatively skewed, because most students would view their instructor favorably. Thus, I used SPSS statistical software and evaluate the normality of the data distribution. While CFA is best used with normally distributed data, most educational data is negatively skewed. Most researchers agree that some statistical techniques need to be applied to adjust for this and enable better interpretation of the data (e.g., Finney & DiStefano, 2013; Marsh & Hau, 2004; Satorra & Bentler, 2001).

Table 4

Minimal Sample Size Based On Number of Indicators and Minimal Item Loadings

	Number of indicators								
	3 or 4			6			8		
Criteria									
Percentage loading	.5	.65	.8	.5	.68	.8	.5	.68	.8
Minimal sample size	190	90	60	90	60	40	90	50	30

There are several important factors to consider in adjusting for data abnormality. First, some data abnormality can be resolved with different approximation methods, such as asymptotically distribution-free (ADF) approximation (Browne, 1984). However, ADF is not an appropriate method for these data, as it requires large *N* (>500) and is particularly unsuccessful in providing convergence with smaller samples (<200; Marsh & Hau, 2004). Instead, the field standard of working with abnormal data is the maximum likelihood (ML) estimation method. The literature suggests that ML with CFA is ideal for addressing problems of non-normality in both factor and error scores under the model; indeed, the results are robust to moderate (e.g., Gaskin & Happell, 2014; Powell & Schafer, 2001; Yang & Liang; 2013). Second, it is useful to take into consideration the skewness in CFA approximation to produce more robust results. Satorra and Bentler (2011) developed a useful mean-adjusted scale to better approximate chi-square under non-normality. The current data analysis also incorporated these ideas to improve data normality.

Item parceling. An additional strategy to work with smaller sample and nonnormal data in CFA is to transform the data using an item parceling technique. Item parceling is done by taking the mean of several items under the same factor, with the assumption that the distribution of item-parcel responses will more closely approximate a normal distribution than the original distribution (Marsh et al., 1998; West, Finch & Curran, 1995). Hau and Marsh (2004) conducted two simulation studies with ML method and systematic variation on differences of nonnormality (none, minimal, moderate, severe), sample size (50-1,000), and indicator formation (8 original items, 4 indicators of

2-item parcels, 2 indicators of 4-item parcels). The results suggested that four indicators (2-item parcels) even with $N = 50$ and extreme nonnormality nearly always converged to fully proper solutions and resulted in unbiased parameter estimates; however, 2 indicators resulted in poor results. As consistent with a similar previous study (Marsh et al., 1998), these authors recommended that, when using item parceling, each latent factor should have at least three indicators to successfully estimate proper results. Item parceling was tested experimentally and reported in the next chapter.

Outcome analysis. Lastly, independent samples *t* tests were used to test for group differences based on sex and FGCS status. Relationships between instructor approachability and other learning outcomes were tested using a Pearson's r correlation.

CHAPTER IV

RESULTS

Phase I: Item Development Results

Based on the consolidated items derived from the focus group results, a final list of 55 unique items was developed for the next phase of the study (see Table 5). The list included 17 negative items (negative items are demonstration that an instructor has low approachability; e.g., the instructor does not talk about how to advance in their area of study).

Phase II: Item Rating Results

There were 36 participants in the second phase of the study, and CVR can be conservatively estimated at .33 (see Table 2 in Chapter III). Using Lawshe's (1975) formula, .33 = [(E – 36 / 2) / (36/2)], with E = 23.94, an item was retained in the sample if it was determined to be "essential" by 24 or more participants; 19 items met the criteria and were subsequently retained for the next phase of the study (see Table 6).

Phase III: Item Testing Results

Factor Analysis

A traditional CFA analysis was conducted to confirm 19 items loading onto one latent factor, instructor approachability. The results produced poor model fit: Comparative Fix Index (CFI) = .615; Tucker-Lewis Index (TLI) = .567; RMSEA = .124;

Table 5

Unique Items Generated from Focus Group

No.	Description
1.	The instructor interacts with students beyond subject matters.
2.	The instructor wants to learn about students as individuals.
3.	The instructor is interested in student goals and aspirations.
4.	The instructor is disrespectful towards students.[a]
5.	The instructor is negatively critical of students in class.[a]
6.	The instructor gives corrective feedback on assignments.
7.	The instructor communicates with students regularly through electronic learning systems (e.g. Canvas, Blackboard).
8.	The instructor answers emails promptly.
9.	The instructor invites students to participate in out-of-class activities.
10.	The instructor commonly frequents places students visit (e.g. library, dining hall).
11.	The instructor treats teaching as more than a job.
12.	The instructor greets students outside of class.
13.	The instructor dresses casually.
14.	The instructor tries to remember student names.
15.	The instructor introduces himself/herself in the beginning of class.
16.	The instructor shares his/her contact info with the class.
17.	The instructor uses humor in class.
18.	The instructor tells relevant stories in class.
19.	The instructor greets students at the beginning of class.
20.	The instructor shares elements of his/her personal life with the class.
21.	The instructor adjusts instruction to facilitate student learning.
22.	The instructor often has his/her office door closed.[a]
23.	The instructor offers convenient office hours.
24.	The instructor is well prepared before class.
25.	The instructor is flexible on class assignments within reason.
26.	The instructor gives clear expectations about the class.
27.	The instructor plays favorites amongst students.[a]

(*table continues*)

No.	Description
28.	The instructor makes himself/herself available immediately before or after class to answer questions if needed.
29.	The instructor welcomes questions/comments during class.
30.	The instructor requires students to use their TAs for help. a
31.	The instructor assigns unreasonable large amount of workload. [a]
32.	The instructor answers student questions directly.
33.	The instructor praise students for asking questions.
34.	The instructor talks about how busy he/she is. [a]
35.	The instructor knows how to relate to students.
36.	The instructor is conscientious of students' course load.
37.	The instructor follows up with student questions.
38.	The instructor ignores student questions. [a]
39.	The instructor reaches out to students to offer help
40.	The instructor is comfortable in the classroom.
41.	The instructor is knowledgeable about subject matters.
42.	The instructor is willing to acknowledge when he/she does not know something.
43.	The instructor does not like to be challenged on his/her ideas. [a]
44.	The instructor often emphasizes his or her credential/qualification. [a]
45.	The instructor does not talk about how to advance in their area. [a]
46.	The instructor does not participate in online activities that he/she expect students to. [a]
47.	The instructor is arrogant. [a]
48.	The instructor is tense. [a]
49.	The instructor is cheerful.
50.	The instructor is friendly.
51.	The instructor is rude. [a]
52.	The instructor is calm.
53.	The instructor never smiles. [a]
54.	The instructor is way too serious. [a]
55.	The instructor shows enthusiasm.

Note. [a] Negative item.

Table 6

Retained Items

Description	# of raters rating the item as essential
The instructor introduces himself/herself in the beginning of class.	29
The instructor shares his/her contact info with the class.	26
The instructor knows how to relate to students.	34
The instructor answers emails promptly.	32
The instructor treats teaching as more than a job.	27
The instructor gives corrective feedback on assignments.	29
The instructor adjusts instruction to facilitate student learning.	26
The instructor welcomes questions/comments during class.	33
The instructor answers student questions directly.	32
The instructor follows up with student questions.	27
The instructor gives clear expectations about the class.	31
The instructor is well prepared before class.	30
The instructor is knowledgeable about subject matters.	36
The instructor is willing to acknowledge when he/she does not know something.	28
The instructor is conscientious of students' course loads.	25
The instructor is cheerful.	26
The instructor is friendly.	32
The instructor is calm.	28
The instructor shows enthusiasm.	31

SRMR =.101. Next, item fits were tested using the item parceling strategy. In order to use the most conservative means based on the traditional method, 19 items were transformed into 4 parcels, which has minimally enough indication for a stable model based on previous studies employing Monte Carlo analysis (Wolf et al., 2013). This strategy also conforms to the general rule of five observations per estimate parameters (Bentler & Chou, 1987). With four parcels, there were 12 estimated parameters that when multiplied

by 5, required 60 observations. Because the items are in random order, items were selected in the sequence presented to avoid any bias while parceling (e.g., item 1, 2, 3, 4, 5). The first three parcels are composed of five items in each group; while the last parcel contained four items. Parcels were then formed by averaging each group of items. Using the four parcels as the indicators of the model, a second CFA was conducted using *R* and obtained improved fit results. The model produced fit indices of CFI = .970; TLI = .911; RMSEA = .131; and SRMR =.027; with a significant *p* value = .172. See Table 7 for fit indices comparison.

Based on parceling test, the results suggested the current measure is stable. The measure with parcels is generated (see Table 8 for parcel loadings). The model was stable with good factor loadings (.767 to .886) and Cronbach's alpha = .874. The parcels are relatively skewed (-1.97 to 1.492) with a skewness error of .319.

Addressing RQ1, the full measure developed with loadings and variances are listed in Table 9. The Cronbach's alpha of the original scale is .905.

Descriptive Analyses

First, I conducted a series of descriptive analyses in SPSS examining the distribution of the data for all the survey data collected. This included the 6-parcel

Table 7

Fit Indices Comparison

Model	CFI	TLI	RMSEA	SRMR
Traditional	.615	.567	.124	.101
Four parcels	.970	.911	.131	.027

Table 8

Parcel Loadings and Variances of Six Parcels Model

Description	Loadings[a]	Variances[a]
The instructor introduces himself/herself in the beginning of class.	.767	.412
The instructor shares his/her contact info with the class.		
The instructor knows how to relate to students.		
The instructor answers emails promptly.		
The instructor treats teaching as more than a job.		
The instructor gives corrective feedback on assignments.	.801	.359
The instructor adjusts instruction to facilitate student learning.		
The instructor welcomes questions/comments during class.		
The instructor answers student questions directly.		
The instructor follows up with student questions.		
The instructor gives clear expectations about the class.	.886	.215
The instructor is well prepared before class.		
The instructor is knowledgeable about subject matters.		
The instructor is willing to acknowledge when he/she does not know something.		
The instructor is conscientious of students' course loads.		
The instructor is cheerful.	.805	.352
The instructor is friendly.		
The instructor is calm.		
The instructor shows enthusiasm.		

[a]Parcels and variances are standardized.

instructor approachability scale, help-seeking items, course satisfaction items, and grades (see Table 10).

Based on skewness tests, all measures violated the assumption of normality with skewness greater than twice the standard error in the negative direction. A log10 based transformation was performed for all the measures in order to conduct inferential statistics. An inverse transformation was done first, in which the variables were reflected prior to the log base 10 transformation due to negative skewness. Re-reflection was not

Table 9

Item Loadings and Variances of Original Model

Description	Loadings[a]	Variances[a]
The instructor introduces himself/herself in the beginning of class.	.464	.784
The instructor shares his/her contact info with the class.	.441	.805
The instructor knows how to relate to students.	.726	.473
The instructor answers emails promptly.	.530	.719
The instructor treats teaching as more than a job.	.733	.462
The instructor gives corrective feedback on assignments.	.608	.631
The instructor adjusts instruction to facilitate student learning.	.634	.598
The instructor welcomes questions/comments during class.	.488	.762
The instructor answers student questions directly.	.446	.801
The instructor follows up with student questions.	.487	.762
The instructor gives clear expectations about the class.	.461	.788
The instructor is well prepared before class.	.349	.878
The instructor is knowledgeable about subject matters.	.547	.701
The instructor is willing to acknowledge when he/she does not know something.	.481	.768
The instructor is conscientious of students' course loads.	.664	.559
The instructor is cheerful.	.858	.264
The instructor is friendly.	.883	.221
The instructor is calm.	.654	.572
The instructor shows enthusiasm.	.859	.262

[a]Loadings and variances are standardized**.**

Table 10

Means, Standard Deviation, and Skewness for All Variables

Measure	*N*	*M*	*SD*	Range	Obs. range	Skew	*SE*
Approach	56	4.38	.485	1-5	2.95-5	-1.00	.319
Help-seeking	56	3.80	.853	1-5	1-5	-.682	.319
Course satisfaction	56	4.12	.694	1-5	2.5-5	-.724	.319
Grade	56	2.80	1.04	0-4	0-4	-.796	.319

necessary because all the variables reflected in the same direction. Transformation completely eliminated or greatly reduced problems with skewness for all the variables (skewness statistics between -.206 to .409, standard error .319). These transformation-corrected data were used in all subsequent statistical analyses

Grade distribution was also negatively skewed, with the most commonly assigned grades being: with A, A-, B+, B and C. Cumulatively, 57.2% of students received B or better grades. Before transformation, all letter grades were converted to their equivalent on a GPA scale in order to perform more complex statistical analysis than is allowed for an ordinal variable. Table 11 lists letter grade, grade, as well as frequency and percentage of the sample obtaining those grades.

Overall, the main study represented a subset of the sample of undergraduate introductory psychology students. The majority of students rated most instructor approachability items at 4 out of 5, with a sample *mean* of 4.38 and *SD* of .485, suggesting that most students felt their instructor was approachable. Students also rated

Table 11

Grade Distribution

Letter grade	Grade	Frequency	Percent
A	4.0	9	16.1
A-	3.7	10	17.9
B+	3.3	6	10.7
B	3.0	7	12.5
B-	2.7	3	5.4
C+	2.3	4	7.1
C	2.0	7	12.5
C-	1.7	5	8.9
D	1.0	3	5.4
F	0.0	2	3.6

their help-seeking attitude highly, with a sample *mean* of 3.80, SD of .853. This suggested that participants were more likely to seek help than not. Most students were also satisfied with their class experiences, with a sample mean of 4.12, *SD* of .694. Last, grades were also mostly in the high range, suggesting that students who participated in the study mostly did well in their classes. If the present sample is representative of the introductory psychology classes, then the preliminary results suggest that the introductory psychology curriculum at this institution produced mostly good results.

Preliminary Analyses of Group Differences

Based on a 2 x 2 table between sex and FGCS, four distinct cells were created. However, some of the cells were too small and the cells are very unbalanced, with the smallest having five observations (FGCS Man) and largest cell having 32 (Non-FGCS Woman). ANOVA was not used due to the unequal distribution of participants in cells. To address RQ2 and RQ3, independent sample *t* tests were conducted to assess for any differences in observed variables between sex and FGCS, respectively (see Table 12).

Table 12

Summary of Independent Sample t *Tests*

Variable	Measure	*t*	*df*	*p*	Cohen's *d*
Sex	Approach	1.182	54	.242	.375
	Help-seeking	.353	54	.725	.106
	Course satisfaction	1.226	34	.228	.338
	Grade	1.860	54	.068	.534
FGCS	Approach	.054	54	.957	.015
	Help-seeking	.740	54	.463	.222
	Course satisfaction	.437	54	.664	.132
	Grade	1.768	54	.083	.515

Addressing RQ2, independent samples *t* tests did not reveal any statistically significant differences between the sexes. Cohen's *d* effect sizes for help seeking attitude differences were small. However, instructor approachability and course satisfaction had medium effect sizes. Finally, effect size for grade was large. These findings suggest that, although statistically significant differences were not observed in this sample, meaningful differences may exist between the sexes when it comes to instructor approachability, course satisfaction, and grade. The means and *SD*s are listed in Table 13.

Addressing RQ3, independent samples *t*-tests did not reveal any statistically significant differences between FGCS and non-FGCS. Cohen's D for help seeking attitude and course satisfaction differences was small, whereas the effect size for grade was large. These findings suggest that differences exist between these variables in different degrees. The means and SDs are listed in Table 14.

Primary Analyses

My goal in the primary analyses of this study was to test the relationship between instructor approachability and the outcome measures: help-seeking attitude, course

Table 13

Comparisons Between Men and Women

	Approach		Help- seeking		Course satisfaction		Grade	
Criteria	Men	Women	Men	Women	Men	Women	Men	Women
n	14	42	14	42	14	42	14	42
Mean	.27	-.091	.082	-.027	.23	-.077	.42	-.14
SD	.92	1.02	1.09	.98	.70	1.08	1.18	.91

Note. Scores are reflected and standardized**.**

Table 14

Comparisons Between Non-FGCS and FGCS

	Approach		Help- seeking		Course satisfaction		Grade	
Criteria	NonFGCS	FGCS	NonFGCS	FGCS	NonFGCS	FGCS	NonFGCS	FGCS
n	41	15	41	15	41	15	41	15
Mean	-.0044	.012	.060	-.16	-.036	.097	-.14	.38
SD	.973	1.11	1.00	1.01	1.01	1.00	.94	1.09

Note. Scores are reflected and standardized.

satisfaction and course grade (RQ4). See Table 15 for the correlation matrix between these variables.

The correlation matrix indicated a statistically significant relationship between instructor approachability scale and help seeking attitude at the .01 level. The relationship between instructor approachability scale and course satisfaction items was also statistically significant at the .01 level. The relationship between help-seeking and student's objective grade is statistically significant at the .05 level.

Posthoc Analyses

Because the instructor approachability scale was not directly related to course grade, I conducted further analyses to assess if the combination of instructor approachability and help-seeking attitude were predicative of grade in a regression model. Using multiple linear regression, I regressed course grade onto help-seeking attitude and course satisfaction. The result was not statistically significant: $F(2, 55) = 2.450$, $p = .096$, adjusted $R^2 = .050$. The regression equation is: Y(Course grade) = -1.133E^17 + .095 X1(instructor approachability) + .232 X2 (help-seeking).

Table 15

Correlation Matrix Between Variables

Variables	1	2	3	4
1. Approach	-	.492**	.761**	.201
2. Help-seeking	.492**	-	.472**	.279*
3. Course sat	.761**	.472**	-	.214
4. GPA	.201	.279*	.214	-

* Significant at the .05 level.
** Significant at the .01 level.

CHAPTER V

DISCUSSION

The purpose of this study was to develop a psychometrically robust measure of instructor approachability, and to have a deeper understanding of how instructor approachability influences student learning. The extant literature suggests that instructor characteristics are an important factor in facilitating student learning (e.g., Benson et al., 2005). The present study examined a unique contributing factor, instructor approachability. Instructor approachability as rationally defined and empirically tested by students captured the definition of "comfort" and "accessibility," reflected in the current study through items such as "the instructor welcomes questions/comments during class" and "the instructor shares his/her contact info with the class." While certain items, such as "the instructor is well prepared before class," seemed less directly related, one can interpret that students might feel more comfortable approaching an instructor that is not preoccupied with preparing for class at the last minute. In the presented study, I evaluated strength of instructor approachability as a predictor of students' help-seeking attitudes, course satisfaction, and learning outcomes. The impact of instructor approachability on student learning highlights the importance of students' perceptions of instructor characteristics. I discussed my findings for the main research questions, as well as lessons learned during this research process regarding other instructor influences on student learning.

Instrument Construction

The present instrument was student-generated based on their unique perspectives at the given institution. In three separate 1-hour focus groups, upper level psychology students generated over 150 statements that they felt were representative of instructor approachability. While each focus group made a unique contribution in the items generated, there was also large overlap in observed instructor behaviors and attitudes that students regarded as approachability characteristics. The list of statements was narrowed down to 55 unique items after converging similar items representing the similar idea.

The items generated by students represented a somewhat different view from what was expected from an instructor's perspective. For example, a consistent theme emerged during focus groups suggesting that students expect an answer when they asked a question. From an instructor's perspective, it is always to the benefit of the student for them to discover and arrive at the answer based on their own understanding. Thus instructors use such opportunities to encourage students to learn further about the topic; however, students do not view their own questions as an opportunity to conduct self-discovery and the way some instructors reflected research curiosity does not seem to be perceived as helpful. Thinking from students' perspectives, it would be helpful to admit not knowing the answer if that is the case, and then invite the students to explore the answer together. This can be accomplished through in-class discussion or independent research by both the instructor and student after class, which is then shared with the class at the next class session. If the instructor has the "correct" answer, and wants to create a teachable moment, it is important for the instructor to provide adequate scaffolding to

help students arrive at the answer. Instructors should explore regularly whether their seemingly helpful behaviors might actually be damaging to instructor approachability and thus may hinder student learning.

The second phase of instrument construction was also informative. Some themes discussed in Phase I of the study also emerged in the 36 participant ratings in Phase II, providing additional clarity about important indicators of instructor approachability. The overall themes suggest that students want instructors to care about them as an individual, to be knowledgeable about their topic, and to be willing to engage with students beyond a superficial "job only" attitude. When instructors demonstrate these attitudes and behaviors, students feel more connected with them. This process also shows that students are sensitive to how much the instructor is invested in the class. If the instructor is unwilling to devote energy and passion into teaching, it will make them feel unapproachable.

The information gleaned is useful in understanding how students view instructor approachability. The end result generated 19 items which were then analyzed for psychometric properties to support scale development. The items derived represent a contribution to the extant literature by providing greater detail and specificity about how instructor approachability is conceived by students, and how it influences student learning. This is discussed further in the next section.

General Discussion

Sex

Somewhat unexpectedly, there were no statistically significant differences in how the sexes viewed instructor approachability. However, calculation of effect size revealed that meaningful differences may exist between measured variables, but were not observed in the present study. The data trended toward women reporting higher scores across all measures, with the largest difference observed in objective course grades.

Differences in help-seeking attitudes were also not statistically significant between sexes, and this unexpected finding was supported by a small effect size. This finding is surprising since previous literature suggested that women are more likely to seek help (e.g., Ryan et al., 1997; Taplin et al., 2007; Wimer & Levant, 2011). On the other hand, some studies found no sex differences in help-seeking attitudes (e.g., Ryan & Pintrich, 1997). These current findings suggest that the perception of masculinity on men might be changing. Perhaps the traditional belief that men are less likely to seek help is not as valid in today's classroom. More studies should look at whether sex plays a role in determining students' perception of instructors. Furthermore, future studies should compare modern classrooms with data collected in the last decade, and examine if sex differences in perception has changed.

There was no statistically significant difference observed between the sexes when it came to course satisfaction; however, a medium effect size suggests that meaningful differences may exist that were not detected in the present sample. Lastly, grade differences between sexes were approaching statistical significance, and had the largest

effect size amongst measured variables. This suggests that men and women may differ, although this was not detected in the present study. Future studies should replicate these criteria with a larger sample size to determine whether the medium to large effect sizes are indeed indicative of actual differences that the present study was not able to capture due to low power.

Last, both instructors in the present study were women. It may be interesting to examine in future studies if a matching effect exists for instructor approachability (e.g. students of the same sex as the instructor rating the instructor more favorably; see Saunders & Saunders, 1999). It would be interesting to examine whether there are sex differences in both students and instructors in perceptions across different disciplines.

First Generation Status

There were also no significant differences in how FGCS versus non-FGCS view instructor approachability. It appears that students who are first generation were just as likely to rate an instructor as approachable as someone who is not. Some literature (e.g., Singham, 2005) suggested that FGCS students could be more sensitive to effect of instructor approachability, because of many barriers to success encountered by FGCS students in higher education. The finding in the current study does not support this assertion. Instead, it suggests that FGCS and non-FGCS students are equally likely to be benefited or harmed by instructor approachability factors.

Limited literature (e.g., Torres et al., 2006) examining FGCS academic help-seeking attitudes suggests that FGCS may have high expectations that instructors will facilitate a positive learning environment conducive to student help-seeking. In the

present study, class satisfaction and grade were not statistically significant for FGCS versus non-FGCS, although the effect size suggests that a larger sample might reveal that non-FGCS report higher class satisfaction and receive higher grades than FGCS. More research is thus needed to confirm whether FGCS indeed have different experiences in class, and to determine the impact on their academic performance.

Instructor Approachability and Outcome

A few significant relationships were found in the present study. First, higher perceived instructor approachability was significantly related to higher help-seeking attitudes. Current findings suggest that participants who viewed their instructor as approachable were more likely to engage in help-seeking. While help-seeking is predictive of a range of positive learning outcomes (e.g., Taplin et al., 2007; Williams & Takaku, 2011), and there are a lot of college resources available to help student succeed (Astin, 1975; Spady, 1971; Tinto, 1975); perceived inability to ask for help essentially makes the resources inaccessible. Indirectly, the results suggest that instructor approachability plays a vital role in positive student learning outcomes by increasing students' help-seeking attitudes and accessibility to resources. Students are often thought of as responsible for initiating help, but current findings suggest that instructors can influence the likelihood that students will engage in this way. More broadly, this study suggests that the institution and the instructors can aid students by facilitating the development of more positive attitudes surrounding help-seeking.

Second, higher perceived instructor approachability was significantly related to class satisfaction. This finding makes logical sense, as students who find their instructor

more approachable also have a positive view of their instructor and hence more likely to have a positive experience in the class. On the other hand, this finding might also suggest that approachability of the instructor might be important underlying criteria that students use to judge whether they have a good experience with the instructor and the class. As the instructor is often the sole facilitator of the class, and the final arbitrator of what happens to students in that class, he or she has a lot of power to shape students' experiences. With greater understanding about how instructor can contribute to the classroom environment through approachability, more intervention can be implemented to enhance student experiences.

Surprisingly, instructor approachability was not significantly related to student grades. I hypothesized that positive perception of the instructor should enhance student performance, as the student should be more comfortable and engaged. Interestingly, although instructor approachability appeared to have no effect on grades, help-seeking attitude did impact grades. One possible explanation is that, while instructor approachability is an important factor to increase student engagement with available resources, student's performance is ultimately dependent on *how* they apply those resources, rather than *if* those resources are perceived to be available.

Lastly, class satisfaction was not related to student grades. This finding suggests that simply enjoying the class is not enough to receive a good grade. This finding confirms the existent literature that suggests student satisfaction and performance are two distinct concepts. This result supports the school of thought in the extant literature arguing that instructors don't have to focus on creating a positive experience in class at

the expense of reducing the rigor of the curriculum. Instructors should be able to provide a positive learning experience for students without inflating the grades of the class. Similarly, even when instructors facilitate a positive experience for students, that does not necessarily mean that students will perform well.

Limitations and Future Research

While I paid meticulous attention at every step of this study to ensure scientific rigor, the present study produced some expected minor error and unexpected deviation from the original intent. Some of these differences are inherent in unpredictability and randomness of human-based research. Other issues resulted from unique circumstances beyond my control. These limitations have been discussed in detail, including remediation applied when appropriate. Suggestions for addressing these limitations in future research are discussed in the sections that follow.

Generalizability

An immediately notable limitation is the representativeness of the sample. The sample lack generalizability due to constricted variability in several variables, including: ethnicity, geographic location, and sex. Ethnicity is an important factor to consider, as the population of college students in the U.S. is becoming increasingly diverse. The present sample has a very small number of self-reported ethnic minority students. This limitation reduces the generalizability of the current finding to other universities that are more diverse. At the same time, it is comforting to know that there are higher ethnic minority students represented in the upper division psychology classes sampled in the current

study. The item construction had fair representation of ethnic minorities as well as sex and FGCS demographics.

The ethnicity diversity limitation is related to the geographic location of the current sample, which is located in a rural Utah with a large majority of the local population being White. The representation of ethnic minorities at this institution is relatively small as compared to other equivalent universities across the United States. Furthermore, in the initial item development stage, no ethnic diversity was present. In the outcome testing stage, a small number of Latino participants were the only minority ethnicity represented. Fortunately, in the item rating stage, there was better ethnic minority representation (20%). For future studies, researchers should modify recruitment techniques to encourage more diverse students to participate. One strategy could be to directly state "we are seeking to recruit a diverse student population to understand instructor approachability, including ethnicity, sex, and FGCS." Other potential strategies include making announcements in ethnic minority interest clubs on campus and forming partnership with diversity offices to encourage referral to the study. Having proportional representation of minority students will increase the generalizability of the study.

Another limitation of representativeness is the sex differences. While the current institution estimated 45% of undergraduates were men, less than 20% of the current study participants self-identified as men. This is consistent with the literature suggesting that women are more likely to participate in research studies than men (Dunn, Jordan, Lacey, Shapley, & Jinks, 2004; Galea & Tracy, 2007). There could be also be additional factors contributing to the sex imbalance in the current study. First, this sample was recruited

from psychology classes, and thus may be impacted by the fact that a higher proportion of women students major in psychology. Second, psychological testing might not appeal in the same way for men and women. While these factors are beyond scope of the current study, future studies examining the factors contributing to different research participation rates would be useful in helping researchers develop strategies to obtain a more sex representative sample. This would increase my ability to generalize any findings demonstrating differences between the sexes.

Another factor could be that men in general view instructors more negatively. Due to social desirability bias, they may have self-selected-out of participation in the study with the belief that they have nothing positive to add. This can be remediated by targeting specific sample testing for both men and women separately, such as creating two simultaneous studies on SONA recruiting men only and women only, respectively. Another strategy for future study is to analyze the available sample of the classroom prior to study, and target classes with a more balanced sex distribution.

Each university will have its own sets of norms and expectations, in-classroom administration, instructional culture, and curriculum structures. These factors undoubtedly affected how their students might perceive instructors, and how instructor approachability factors are expressed. Given that the present study seeks to validate a measure that could be generalized across United States higher education classrooms, more samples across universities will be needed to increase generalizability.

In addition, students had a course requirement of completing a limited number of studies for course credits. This study involved collecting student learning outcomes,

which are designated towards end of the semester. By that time many students already fulfilled their course requirement for the number of studies they had to participate in.

For the purpose of item validity, FGCS representation was an important contribution, because it provides insight into how FGCS potentially have a different experience in the learning environment. The recruitment was successful in obtaining FGCS at multiple stages, due to I actively seeking out a representative sample of FGCS. This was accomplished in item generation stage of the present study by specifically designing a FGCS focus group, expecting that these students might have somewhat unique contribution to understanding instructor approachability. This approach facilitated the incorporation an important perspective that increased study generalizability.

Last, both instructors in the present study have been rated highly by their students according to their university rating system on a 5-point Likert scale (Teacher 1: excellent teacher = 4.3, excellent course = 3.8; Teacher 2: excellent teacher = 4.1, excellent course = 3.8). While this provided a uniform baseline, a ceiling effect might exist when evaluating two instructors who excelled at their job. Future studies should compare instructors with more variability in classroom ratings, using more complex model such as nesting variables to detect differences between instructors.

Item Reduction

In the item reduction stage, I carefully constructed the evaluating question to inquire about essentiality of each item rather than agreement. Participants evaluated each item and choose one of the three responses: (a) essential, (b) useful but not essential, or (c) not necessary. The question posed to participants in item reduction stage was: “How

essential is the statement helping us to evaluate whether or not an instructor is approachable?" The participant should rate an item as 'essential' if that particular item either demonstrates strong approachability, or strong non-approachability. It appeared that participants were in agreement in evaluating positively worded item, such as "The instructor is well prepared for the class." However, two kinds of extreme responses were recorded for negatively worded item. For example, item such as "The instructor is disrespectful towards the student," about half the response endorsing 'essential' and half the response endorsing 'not necessary.' The negatively worded items seemed particularly puzzling to some of the participants, as some of the participants seemed to evaluated the item base on degree of *positive* instructor approachability only, instead of essentialness of the statement to evaluate instructor approachability. While the question was worded carefully, it seemed that many participants still misunderstood. The result was that all negatively worded items were eliminated from the reduction procedure because none of them met the 'essential' threshold for ratings criteria. For future studies, researchers should pay particular attention in how to structure questions to avoid misinterpretation. One strategy is to divide positively and negatively worded items into separate surveys and use sample questions to check participant understanding before proceeding. If resources allow, a better strategy is collecting this portion of the data in person, so the researchers can provide an additional level of check for understanding.

Participant Recruitment

While I recruited an adequate sample size for Phases I and II of the study, I was not able to do so for Phase III. The need to coordinate efforts with the university registrar

and the research mentor, and to comply with IRB oversight presented some challenges with recruiting participants. An issue that arose in the process of recruitment was that the Office of the Registrar must comply with FERPA regulations. This meant that students had to physically sign a release of information to signify their consent to have their grades included in the study. This created a challenge in data collection as we had to deliver physical copies of these documents to each of the classrooms where recruitment occurred. Due to strain on instructional time, both instructors were willing to allow us to take class time to obtain signatures, but not to complete the research questionnaires in class. This meant that data collection had to occur after a significant delay, which increased the potential for participant loss. To help students connect with the survey, after consulting with IRB, a reminder email was distributed to all participants who signed both documents. The final result was that 141 individuals signed informed consent in class, but 44 individuals actually participated on SONA. While this was a significant loss, the calculated participation rate was 31.2%, which is reasonable for online participation.

Additional steps were taken to obtain more data. Because the study was hosted by Qualtrics and framed in SONA, every student in the classes sampled had the potential access to the study. After revising procedure with IRB, an additional email was distributed to the instructors asking them to post a direct link to the study. This was done to encourage participation from students who either signed up but had not yet participated, or wished to participate but did not initially sign up. The modified online survey started with screener information requesting students to sign the informed consent and release of information. This step asked participants to contact me by email to obtain

electronic copies of the forms, then print and sign both forms, and send them back to me through email in jpg or pdf format. While this created additional obstacles which potentially deter students from participation, 12 additional students were recruited. The final sample size was 44 + 12 = 56. The instructions provided clearly stated that students needed to sign documents to participate, but 8 students completed the survey without signing the documents. They and were unreachable by email afterwards, therefore their data were excluded from the study.

While I was meticulous in planning for access to classrooms in each phase of study, it was not anticipated that six other researchers had already approached the introductory psychology classes that semester. Being unable to conduct the study in class also significantly increased data loss. For future studies, it is important for me to seek access to classroom that allow participation in class. This is more convenient for students and is likely to result in larger absolute numbers of participants. Recruiting from similar large lecture classes outside of psychology in areas such as sociology, biology or business might increase the chance that I can use limited classroom time to obtained needed data. Extending the current study into other fields also increases the generalizability of the measure beyond introductory psychology courses.

If in class study is not possible, future recruitment can also take place solely over the internet, as demonstrated partially by the current study. However, it is essential that the recruitment be more structured, so that participants do not get “lost” in trying to find the survey. As the present study collected a large amount of in-person signatures, some students might become confused about the requirements of participation, or how to

access the actual study. For future studies that cannot be completed in class, it would be advantageous to set up the entire recruitment process over a platform such as SONA, so students understand that there is one access point to the survey, and the procedure is more straightforward and streamlined.

Online Study

As with all online studies, participants completed the survey answers in their own environment. This means that participants will vary in their levels of distraction as well as attention. While online study presents this potential confounding issue to data integrity, the benefit of convenience outweighs the potential risks. As technology is becoming more available and accessible, online research presents the opportunity to obtain large samples and diverse data that is otherwise difficult to accomplish in person.

In addition, online classrooms are becoming more common in higher education. The online environment arguably will remove large components of non-verbal cues taking place in classroom. Understanding how instructor approachability might be perceived, and how it influences help-seeking, in online courses is important to understand. Future studies should look at differences in students' perceptions of instructor approachability between in-person and online courses. More research is also needed to determine whether certain instructor approachability characteristics will be more important than others for online classrooms.

Data Normality

All the measures captured in the present study were negatively skewed. While this

is inconvenient statistically, the captured data is representative of what is commonly seen in educational research. Log10 transformation effective for mitigating the skewness. However, because the original data is transformed, it is important to consider the representativeness of the data when forming interpretation and understanding based on statistical results.

Conclusion

In conclusion, this study involved the creation of a measure, named *Instructor Approachability Scale,* which captured the essence of comfort and accessibility in instructor approachability. I did not find any statistically significant sex or first generation versus non-first generation differences in variables of interests, yet some medium to large effect sizes suggested that meaningful differences may exist that were not detected in the present sample. Specifically, the relationship between instructor approachability and help-seeking attitude was examined. Given that help-seeking is an important strategy that fosters student success, the strong magnitude of the relationship between instructor approachability and help-seeking attitude supports the hypothesis that instructors play an important role in facilitating student attitude and behavioral change. Similarly, instructor approachability was significantly related to student satisfaction, suggesting that approachable instructors are well received by students and were rewarded with positive evaluations. While instructor approachability was not significantly related to course grade, help-seeking attitude was related to course grade. This finding suggested that the instructor can enable student access to resources, but students are ultimately responsible

in translating the resources into results. Lastly, class satisfaction was not related to grade. This finding confirms the distinction between student satisfaction and academic performance, and suggest that students can be satisfied with their classes and not do well in them. The finding also suggests that instructor can provide a positive learning experience for students, without diluting the difficulty of the content.

REFERENCES

Ames, R. (1983). Help-seeking and achievement orientation, perspectives from attribution theory. In A. Nadler, J. Fisher, & B. DePaulo (Eds.), *New directions in helping*. New York, NY: Academic.

Andrews, A. R., Bridges, A. J., & Gomez, D. (2013). A multi-study analysis of conceptual and measurement issues related to health research on acculturation in Latinos. *Journal of Transcultural Nursing*, *24*(2), 134-143.

Astin, A. W. (1975). *Preventing students from dropping out*. San Francisco, CA: Jossey-Bass.

Arbaugh, J. B. (2005). How much does "subject matter" matter? A study of disciplinary effects in on-line MBA courses. *Academy of Management Learning & Education, 4,* 57-73.

Benson, T. A., Cohen, A. L., Buskist, W., Gurung, R. A., Cann, A., Marek, P., ... Long, H. E. (2005). Faculty Forum. *Teaching of Psychology*, *32*(4), 237-270.

Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods & Research*, *16*(1), 78-117.

Brown, L. M., & Dobbins, H. (2004). Students' of color and European American students' stigma-relevant perceptions of university instructors. *Journal of Social Issues*, *60*(1), 157-174. doi:10.1111/j.0022-4537.2004.00104.x

Browne, M. W. (1984). Asymptotically distribution-free methods for the analysis of covariance structures. *British Journal of Mathematical and Statistical Psychology*, *37*(1), 62-83.

Carnevale, A. P., Jayasundera, T., & Cheah, B. (2012). *The college advantage: Weathering the economic storm*. Washington, DC: Georgetown University Center on Education and the Workforce.

Carnevale, A. P., Rose, S. J., & Cheah, B. (2011). *The college payoff: Education, occupations, lifetime earnings*. Washington, DC: Georgetown University Center on Education and the Workforce.

Cheng, H. L., Kwan, K. L. K., & Sevig, T. (2013). Racial and ethnic minority college students' stigma associated with seeking psychological help: Examining psychocultural correlates. *Journal of Counseling Psychology*, *60*(1), 98-107.

Clayson, D. E. (2005). Within-class variability in student-teacher evaluations: Examples and problems. *Decision Sciences Journal of Innovative Education, 3*, 109-124.

Collins, T. (1997). For openers…An inclusive syllabus. In W. E. Campbell & K. A. Smith (Eds.), *New paradigms for college teaching* (pp. 79-102). Edina, MN: Interaction.

Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis*. Hillsdale, NJ: Erlbaum.

Cudeck, R., & O'Dell, L. L. (1994). Applications of standard error estimation in unrestricted factor analysis: Significance tests for factor loadings and correlations. *Psychological Bulletin, 115*, 475-487.

DeAngelo, L., Franke, R., Hurtado, S., Pryor, J. H., & Tran, S. (2011). *Completing college: Assessing graduation rates at four-year institutions*. Los Angeles, CA: Higher Education Research Institute, UCLA.

Delucchi, M. (2000). Don't worry, be happy: Instructor likability, student perceptions of learning, and teacher ratings in upper-level sociology courses. *Teaching Sociology*, 220-231.

DeWinter, J. C. F., Dodou, D., & Wieringa, P. A. (2009). Exploratory factor analysis with small sample sizes. *Multivariate Behavioral Research*, *44*(2), 147-181.

DiClementi, J. D., & Handelsman, M. M. (2005). Empowering students: Class-generated course rules. *Teaching of Psychology*, 32, 18-21.

Dillon, J. T. (1988). *Questioning and teaching: A manual of practice.* New York, NY: New York Teachers College.

Dillon, J. T. (1990). *The practice of questioning.* New York, NY: Routledge.

Doolittle, P. E., & Siudzinski, R. A. (2010). Recommended syllabus components: What do higher education faculty include in their syllabi? *Journal On Excellence in College Teaching, 21*(3), 29-61.

Drago, W., Peltier, J., & Sorensen, D. (2002). Course content or the instructor: Which is more important in on-line teaching? *Management Research News*, *25*(6/7), 69-83.

Dunn, K. M., Jordan, K., Lacey, R. J., Shapley, M., & Jinks, C. (2004). Patterns of consent in epidemiologic research: evidence from over 25,000 responders. *American Journal of Epidemiology*, *159*, 1087-1094.

Faranda, W. T., & Clarke, I. (2004). Student observations of outstanding teaching: Implications for marketing education. *Journal of Marketing Education, 26, 271-281.*

Feldman, K. A. (1976). The superior college teacher from the students' view. *Research in Higher Education*, *5*(3), 243-288.

Filz, T., & Gurung, R. A. (2013). Student perceptions of undergraduate teaching assistants. *Teaching of Psychology*, *40*(1), 48-51.

Finney, S. J., & DiStefano, C. (2013). Non-normal and categorical data in structural equation modeling. In G. R. Hancock & R. O. Mueller (Eds.), *Structural equation modeling: A second course* (2nd ed., pp. 439-492). Charlotte, NC: Information Age.

Flynn, F. J., & Lake, V. K. (2008). If you need help, just ask: Underestimating compliance with direct requests for help. *Journal of Personality and Social Psychology*, *95*(1), 122-134.

Foster, D. A., & Hermann, A. D. (2011). Linking the first week of class to end-of-term satisfaction: Using a reciprocal interview activity to create an active and comfortable classroom. *College Teaching*, *59*(3), 111-116.

Galea, S., & Tracy, M. (2007). Participation rates in epidemiologic studies. *Annals of Epidemiology*, *17*(9), 643-653.

Gaskin, C. J., & Happell, B. (2014). On exploratory factor analysis: A review of recent evidence, an assessment of current practice, and recommendations for future use. *International Journal of Nursing Studies*, *51*(3), 511-521.

Georgetown University Center on Education. (2012). *National Postsecondary Student Aid Study (NPSAS).* Georgetown, MD: The University of Georgetown.

Glenberg, A. M., & Epstein, W. (1987). Inexpert calibration of comprehension. *Memory & Cognition, 15*(1), 84-93.

Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Erlbaum.

Gruber, T., Lowrie, A., Brodowsky, G. H., Reppel, A. E., Voss, R., & Chowdhury, I. (2012). Investigating the Influence of professor characteristics on student satisfaction and dissatisfaction: A comparative study. *Journal of Marketing Education*, *34*(2), 165-178.

Grunert, J. (1997). *The course syllabus: A learning-centered approach*. Bolton, MA: Anker.

Harnish, R. J., & Bridges, K. R. (2011). Effect of syllabus tone: Students' perceptions of instructor and course. *Social Psychology of Education, 14*(3), 319-330.

Harnish, R. J., O'Brien McElwee, R., Slattery, J. M., Frantz, S., Haney, M. R., Shore, C. M., & Penley, J. (2011). Creating the foundation for a warm classroom climate: Best practices in syllabus tone. *APS Observer*, 24, 23-27.

Hartman-Hall, H. M., & Haaga, D. A. (2002). College students' willingness to seek help for their learning disabilities. *Learning Disability Quarterly*, *25*(4), 263-274.

Hartnett, N., Römcke, J., & Yap, C. (2003). Recognizing the importance of instruction style to students' performance: Some observations from laboratory research—a research note. *Accounting Education*, *12*(3), 313-331.

Holliday, M. R. (2014). *First year experience seminars: How contrasting models impact the college transition and retention*. Tucson, AZ: The University of Arizona.

Hwang, Y. S., & Vrongistinos, K. (2002). Elementary in-service teachers' self-regulated learning strategies related to their academic achievements. *Journal of Instructional Psychology, **29*** **(3-11).**

Jaasma, M. A., & Koper, R. J. (1999). The relationship of student-faculty out-of-class communication to instructor immediacy and trust and to student motivation. *Communication Education*, *48*(1), 41-47. doi:10.1080/03634529909379151

Karabenick, S. A. (2001, April). *Help seeking in large college classes: Who, why, and from whom.* Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.

Karabenick, S. A. (2002, July). *Effects of subjective classroom context on college student help seeking.* Paper presented at the International Congress of Applied Psychology, Singapore.

Karabenick, S. A., & Dembo, M. H. (2011). Understanding and facilitating self-regulated help seeking. *New Directions for Teaching & Learning*, *2011*(126), 33-43. doi:10.1002/tl.442

Karabenick, S. A., & Knapp, J. R. (1991). Relationship of academic help seeking to the use of learning strategies and other achievement behavior in college students. *Journal of Educational Psychology, 83,* 221-230.

Karabenick, S. A., & Newman, R. S. (Eds.). (2013). *Help seeking in academic settings: Goals, groups, and contexts*. New York, NY: Routledge.

Karabenick, S. A., & Sharma, R. (1994). Perceived teacher support of student questioning in the college classroom: Its relation to student characteristics and role in the classroom questioning process. *Journal of Educational Psychology*, *86*(1), 90-114.

Kano, N. (1984). Evolution of quality control with change of economic structure in Japan. *Reports of Statistical Application Research, JUSE*, *31*(3), 22-41.

Kelley, C. A., Conant, J. S., & Smart, D. T. (1991). Master teaching revisited: Pursuing excellence from the students' perspective. *Journal of Marketing Education, 13*(2), 1-10. doi:10.1177/027347539101300202

Koval, M. R. (2013). Step away from the syllabus: Engaging students on the first day of legal environment. *Journal of Legal Studies Education*, *30*(1), 179-194.

Kozanitis, A., Desbiens, J. F., & Chouinard, R. (2007). Perception of teacher support and reaction towards questioning: Its relation to instrumental help-seeking and motivation to learn. *International Journal of Teaching and Learning in Higher Education*, *19*(3), 238-250.

Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, *79*(5), 540-563.

Kumrow, D. E. (2007). Evidence-based strategies of graduate students to achieve success in a hybrid web-based course. *The Journal of Nursing Education, 46*(3), 140-145.

Lam, Y. L. J., & Wong, A. (1974). Attendance regularity of adult learners: An examination of content and structural factors. *Adult Education Quarterly*, *24*(2), 130-142.

Lawshe, C. H. (1975). A quantitative approach to content validity1. *Personnel Psychology*, *28*(4), 563-575.

Lawton, K. E., Gerdes, A. C., Haack, L. M., & Schneider, B. (2014). Acculturation, cultural values, and Latino parental beliefs about the etiology of ADHD. *Administration and Policy in Mental Health and Mental Health Services Research*, *41*(2), 189-204.

London, H. B. (1992). Transformations: Cultural challenges faced by first-generation students. *New Directions for Community Colleges*, *1992*(80), 5-11.

Lynch, M., & Engle, J. (2010a). Big gaps, small gaps: Some colleges and universities do better than others in graduating Hispanic students. College Results Online. *Education Trust*. Retrieved from http://files.eric.ed.gov/fulltext/ED514356.pdf

Lynch, M., & Engle, J. (2010b). Big gaps, small gaps: Some colleges and universities do better than others in graduating African-American students. College Results Online. *Education Trust*. Retrieved from http://files.eric.ed.gov/fulltext/ED511866.pdf

Marsh, H. W., Fleiner, H., & Thomas, C. S. (1975). Validity and usefulness of student evaluations of instructional quality. *Journal of Educational Psychology*, *67*(6), 833-847.

Marsh, H. W., & Hau, K. T. (2004). Explaining paradoxical relations between academic self-concepts and achievements: Cross-cultural generalizability of the internal/external frame of reference predictions across 26 countries. *Journal of Educational Psychology*, *96*(1), 56-68.

Marsh, H. W., Hau, K. T., Balla, J. R., & Grayson, D. (1998). Is more ever too much? The number of indicators per factor in confirmatory factor analysis. *Multivariate Behavioral Research*, *33*(2), 181-220.

Marsh, H. W., & Roche, L. A. (1997). Making students' evaluation of teaching effectiveness effective: The critical issues of validity, bias, and utility. *American Psychologist, 52*, 1187-1197. doi:10.1037/0003-066X.52.11.1187

May, G. L., & Short, D. (2003). Gardening in cyberspace: A metaphor to enhance online teaching and learning. *Journal of Management Education, 27,* 673-693.

McCaslin, M., & Good, T. (1992). Compliant cognition: The misalignment of management and instructional goals in current school reform. *Educational Researcher, 21*(4), 4-17.

McGoldrick, K., & Schuhmann, P. W. (2002). Instructor gender and student registration: An analysis of preferences. *Education Economics*, *10*(3), 241-260. doi:10.1080/09645290210127480

McKeachie, W. J. (1986). *Teaching tips*. Lexington. MA: Heath.

McKeachie, W. J. (2002). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers* (11th ed.). Boston, MA: Houghton Mifflin.

Mehrabian, A. (1971). *Silent Messages,* Belmont, CA: Wadsworth.

Nadler, A. (1983). Personal characteristics and help-seeking. *New Directions in Helping*, *2*, 303-340.

National Center for Education Statistics. (2011). *Digest of education statistics.* Washington, DC: Department of Education.

Nelson, B., Dunn, R., Griggs, S. A., & Primavera, L. (1993). Effects of learning style intervention on college students' retention and achievement. *Journal of College Student Development, Sept,* 89.

Nilson, L. B. (1998). *Teaching at its best: A research-based resource for college instructors.* Boston, MA: Anker.

Nunnally, J. C., & Bernstein, I. H. (1994). The assessment of reliability. *Psychometric Theory*, *3*(1), 248-292.

Organisation for Economic Co-Operation and Development. (2013). *Education at a Glance 2013: OECD Indicators.* Paris, France: Author.

Oreopoulos, P., & Salvanes, K. G. (2009). *How large are returns to schooling? Hint: Money isn't everything* (No. w15339). Washington, DC: National Bureau of Economic Research.

Osterlind, S. J. (1989). *Constructing tests items*. Boston, MA: Kluwer.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students* (Vol. 2). K. A. Feldman (Ed.). San Francisco: Jossey-Bass.

Patton, T. (1999). Ethnicity and gender: An examination of its impact on instructor credibility in the university classroom. *Howard Journal of Communications*, *10*(2), 123-144. doi:10.1080/106461799246852

Payakachat, N., Gubbins, P. O., Ragland, D., Norman, S. E., Flowers, S. K., Stowe, C. D., … Hastings, J. K. (2013). Academic help-seeking behavior among student pharmacists. *American Journal of Pharmaceutical Education, 77*(1), 7-14. doi:http://dx.doi.org/10.5688/ajpe7717.

Pepe, J. W., & Wang, M. C. (2012). What instructor qualities do students reward? *College Student Journal*, *46*(3), 603-614.

Pintrich, P. R., & Zusho, A. (2002). The development of academic self-regulation: The role of cognitive and motivational factors. In A. Wigfield & S. Jacquelynne (Eds.). *Development of achievement motivation* (pp. 249-284). San Diego, CA: Academic Press.

Powell, D. A., & Schafer, W. D. (2001). The robustness of the likelihood ratio chi-square test for structural equation models: A meta-analysis. *Journal of Educational and Behavioral Statistics*, *26*(1), 105-132.

Richmond, V. P., McCroskey, J. C., & Johnson, A. D. (2003). Development of the nonverbal immediacy scale (NIS): Measures of self-and other-perceived nonverbal immediacy. *Communication Quarterly*, *51*(4), 504-517.

Rubin, L. J. (1985). *Artistry in teaching*. London, England: Random House.

Ryan, A. M., Hicks, L., & Midgley, C. (1997). Social goals, academic goals, and avoiding seeking help in the classroom. *The Journal of Early Adolescence*, *17*(2), 152-171.

Ryan, A. M., & Pintrich, P. R. (1997). "Should I ask for help?" The role of motivation and attitudes in adolescents' help seeking in math class. *Journal of Educational Psychology*, *89*(2), 329-346.

Ryan, A. M., Pintrich, P. R., & Midgley, C. (2001). Avoiding seeking help in the classroom: Who and why? *Educational Psychology Review*, *13*(2), 93-114.

Sánchez, M. M., Pecino, R. M., Rodríguez, Y. T., & Melero, P. T. (2011). Student perspectives on the university professor role. *Social Behavior and Personality: An International Journal*, *39*(4), 491-496.

Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, *66*(4), 507-514.

Satorra, A., & Bentler, P. (2011). *Scaling corrections for statistics in covariance structure analysis.* Los Angeles, CA: Department of Statistics, UCLA.

Saunders, K. T., & Saunders, P. (1999). The influence of instructor gender on learning and instructor ratings. *Atlantic Economic Journal*, *27*(4), 460-474.

Saunders, M., & Serna, I. (2004). Making college happen: The college experiences of first-generation Latino students. *Journal of Hispanic Higher Education*, *3*(2), 146-163.

Seiler, V. L., & Seiler, M. J. (2002). Professors who make the grade. *Review of Business, 23(2)*, 39-44.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research*, *99*(6), 323-338.

Schunk, D. H., & Zimmerman, B. J. (Eds.). (2012). *Motivation and self-regulated learning: Theory, research, and applications*. New York, NY: Routledge.

Shapiro, E. G. (1983). Embarrassment and help-seeking. *New Directions in Helping*, *2*, 143-163.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, *57*(1), 1-23.

Sideridis, G., Simos, P., Papanicolaou, A., & Fletcher, J. (2014). Using structural equation modeling to assess functional connectivity in the brain power and sample size considerations. *Educational and Psychological Measurement*, *74*(5), 733-758.

Singham, M. (2005). Away from the authoritarian classroom. *Change: The Magazine of Higher Learning*, *37*(3), 50-57.

Slattery, J. M., & Carlson, J. F. (2005). Preparing an effective syllabus. *College Teaching, 53*(4), 159-164.

Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, *2*(3), 38-62.

Svinicki, M. D. (2004). *Learning and motivation in the postsecondary classroom*. Bolton, MA: Anker.

Swan, K. (2003). Learning effectiveness: What the research tells us. In J. Bourne & J. C. Moore (Eds.), *Elements of quality online education: Practice and direction* (vol. 3, pp. 13-45). Needham, MA: Sloan Consortium.

Symonds, W. C., Schwartz, R. B., & Ferguson, R. (2011). *Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century*. Cambridge, MA: Harvard Graduate School of Education, Pathways to Prosperity Project

Taplin, M., Yum, J., Jegede, O., Fan, R. Y., & Chan, M. S. (2007). Help-seeking strategies used by high-achieving and low-achieving distance education students. *International Journal of E-Learning & Distance Education*, *16*(1), 56-69.

Thompson, B. (2007). The syllabus as a communication document: Constructing and presenting the syllabus. *Communication Education*, *56*(1), 54-71. http://www.theideacenter.org/research-and-papers/other-research

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, *45*(1), 89-125.

Tinto, V. (2006). Research and practice of student retention: what next? *Journal of College Student Retention: Research, Theory and Practice*, *8*(1), 1-19.

Torres, V., Reiser, A., LePeau, L., Davis, L., & Ruder, J. (2006). A model of first-generation Latino/a college students' approach to seeking academic information. *NACADA Journal*, *26*(2), 65-70.

U.S. Department of Education. (1998). *American Indians and Alaska Natives in Postsecondary Education.* Washington, DC: U.S. Government Printing Office.

Voss, R., Gruber, T., & Szmigin, I. (2007). Service quality in higher education: The role of student expectations. *Journal of Business Research*, 60, 949-959.

West, S. G., Finch, J. F., & Curran, P. J. (1995). Structural equation models with nonnormal variables: Problems and remedies. In R. Hoyle (Ed.), *Structural equation modeling: Concepts, issues and applications* (pp. 56-75). Newbury Park, CA: Sage.

Williams, J. D., & Takaku, S. (2011). Help-seeking, self-efficacy, and writing performance among college students. *Journal of Writing Research*, *3*(1), 1-18.

Wilson, J. H., Ryan, R. G., & Pugh, J. L. (2010). Professor–student rapport scale predicts student outcomes. *Teaching of Psychology*, *37*(4), 246-251.

Wimer, D. J., & Levant, R. F. (2011). The relation of masculinity and help-seeking style with the academic help-seeking behavior of college men. *The Journal of Men's Studies*, *19*(3), 256-274.

Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models an evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement*, *73*(6), 913-934.

Yang, Y., & Liang, X. (2013). Confirmatory factor analysis under violations of distributional and structural assumptions. *International Journal of Quantitative Research in Education*, *1*(1), 61-84.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal*, *45*(1), 166-183.

APPENDICES

Appendix A

Consent for Release of Information

Consent for release of information

I, _____, understand that by signing my name, I hereby agree to participate in the study, EXPLORING THE RELATIONSHIP BETWEEN INSTRUCTOR APPROACHABILITY AND STUDENT HELP-SEEKING BEHAVIORS AMONG COLLEGE STUDENTS by Xin Zhao, M.S., Scott Bates, Ph.D. and Michael Williams. The study intends to examine how perceived instructor approachability affects student learning behaviors and outcomes, and can potentially benefit future students through improvement of teaching techniques. I have read and signed an Informed Consent to participate in this study.

I hereby give permission for my name, final semester grade and educational enrollment status in the current class (CRN: _____) to be released to the researcher. I understand that this release of information is for research purpose in the given study only. Further, after linking my survey responses to the above information, the researcher will replace my name with a de-identified code, and all identifiable personal information will be destroyed thereafter. I further understand that this participation is voluntary, and I have the option to withdraw my participation and/or data at any time, before the completion of the data collection, without penalty from the instructor or the researcher.

Signed: _____

A#:_____

Date: _____

Appendix B

Instructor Approachability Scale

Instructor Approachability Scale (in development)

Instruction: Think about the instructor of the class, and rate the following items:

Strongly Disagree, Somewhat Disagree, Neither Agree or Disagree, Somewhat Agree, Strongly Agree

The instructor introduces himself/herself in the beginning of class.
The instructor shares his/her contact info with the class.
The instructor knows how to relate to students.
The instructor answers emails promptly.
The instructor treats teaching as more than a job.
The instructor gives corrective feedback on assignments.
The instructor adjusts instruction to facilitate student learning.
The instructor welcomes questions/comments during class.
The instructor answers student questions directly.
The instructor follows up with student questions.
The instructor gives clear expectations about the class.
The instructor is well prepared before class.
The instructor is knowledgeable about subject matters.
The instructor is willing to acknowledge when he/she does not know.
The instructor is conscientious of students' course loads.
The instructor is cheerful.
The instructor is friendly.
The instructor is calm.
The instructor shows enthusiasm.

Appendix C

Help-Seeking Attitude Items

Help-seeking attitude items

1= not at all true 5= completely true

General Intention to Seek Needed Help

If I needed help in this class I would ask someone for assistance.
If I needed help understanding the lectures in this class I would ask for help.
If I needed help with the readings in this class I would ask for help.

General Intention to Avoid Needed Help

If I did not understand something in this class I would guess rather than ask someone for assistance.
I would rather do worse on an assignment I could not finish than ask for help.
Even if the work was too hard to do on my own, I would not ask for help with this class.

Appendix D

Course Satisfaction Items

Please rate the quality of the course as a whole:
(*poor*) 1 2 3 4 5 (*excellent*)

"Overall, the instructor is an excellent teacher"
(*strongly disagree*) 1 2 3 4 5 (*strongly agree*)

"The instructor motivates me to do my best work"
(*strongly disagree*) 1 2 3 4 5 (*strongly agree*)

How much do you feel you have learned from this class?
(*very little*) 1 2 3 4 5 (*a great deal*)

What do you think is your current grade in the class?
F D C B A

Appendix E

Student Demographic Information

Student demographic information

Are you a (circle one):
- Man
- Woman

Are you Latino/a:
- Yes
- No

What is your race :
- White
- African American
- Asian/Asian American
- Native American
- Other (Please specify): _____

What is the highest education attained by your FATHER?
- Doctoral Degree
- Master's Degree
- Bachelor's Degree
- Some College
- Community College
- High School/GED
- Did not finish high school

What is the highest education attained by your MOTHER?
- Doctoral Degree
- Master's Degree
- Bachelor's Degree
- Some College
- Community College
- High School/GED
- Did not finish high school

CURRICULUM VITAE

XIN ZHAO

Current Address
169 Coventry Place
Logan, UT 84341
(540) 250-5697
shinjaw@gmail.com

Permanent Address
2535 Michelle St.
Pocatello, ID 83201

EDUCATION

Ph.D. 2016	Utah State University (USU) Combined Psychology (Clinical, Counseling and School Psychology) Dissertation: *Development of a student-perspective based scale on instructor approachability* Chair: Scott Bates, Ph.D.
M.S. 2012	Utah State University Counseling Psychology Thesis: *Asian college students perceived peer group cohesion, cultural identity and college adjustment* Chair: Donna Gilbertson, Ph.D.
B.S. 2008	Virginia Polytechnic Institute and State University (Virginia Tech) Honor's Scholar, Psychology Thesis: *A community-based study of littering behaviors* Mentors: Elise Drake, M.S. and E. Scott Geller, Ph.D.

OTHER LANGUAGES

Mandarin Chinese	Native
Spanish	Conversational

TEACHING EXPERIENCE

2010–2013	**Sole Course Instructor** (5 sections) Psychology 1010: Introductory Psychology Brigham City Campus, Utah State University

AWARDS AND HONORS

2013 USU Carolyn Barcus Diversity Scholarship
2012 Utah Psychological Association Eco-Psychology Scholarship
2012 USU Graduate Student Senate Travel Award
2008 USU Vice President Research Fellowship
2008 Virginia Tech Undergraduate Research Excellence in Psychology
2007 Virginia Academy of Science Undergraduate Research Award

CLINICAL/COUNSELING EXPERIENCE

9/15—8/16 *Intern Staff* (APA Accredited)
Student Medical and Counseling Clinic, Central Washington University – Ellensburg, Washington
Total hours: 2138 Direct contact hours to date: 512

8/11—6/14 *Secondary Therapist/Graduate Assistant*
Avalon Hills Residential Eating Treatment Programs - Adult, Paradise, Utah
Total hours: 410 Direct contact hours: 151.5

6/12—5/13 *Student Therapist*
Utah State University Psychology Anxiety Clinic, Logan, Utah
Total hours: 130 Direct contact hours: 42.5

8/10—5/11 *Student Therapist*
Utah State University Counseling and Psychological Services, Logan, Utah
Total hours: 296 Direct contact hours: 98.5

6/09—5/11 *Student Therapist*
Utah State University Psychology Community Clinic, Logan, Utah
Total hours: 493 Direct contact hours: 112.5

SERVICE TO PROFESSION

Ad Hoc Peer Review:
The New School Psychology Bulletin Journal
Asian American Psychologist (Newsletter)

APA Committee:
Diversity committee: subcommittee chair of resources, Division 2 (Society of Teaching, 2013–current)

President's task force on Narrative Teaching, Division 2 (2013–2014)
Public relations, Division 2 (2011–2012)
Postpartum depression working group, Women's Programs Office (2010)
New faculty recruitment, Division 2 (2009–2010)

UNIVERSITY SERVICE

USU access and diversity center scholarship review committee (2015)
USU Northern Utah regional science fair executive committee (2013-2014)
USU president's student advisory board (2012–2013)
USU Vice-Provost search committee, graduate panel (2012–2013)
USU departmental graduate student co-representative (2011–2012)

INVITED TALK

2012 **We all have a home, named "Society"**
College of Humanities
Northwest Agricultural and Forestry University, Yangling, China

CAMPUS TALK

2015 **Stress management for music students**
Central Washington University, Ellensburg, WA

2009–2011 **Panel discussion, Diversity Issues in Counseling class** (Annually)

Utah State University, Logan, UT

2010 **Special presentation on anxiety for non-traditional students**
Utah State University, Logan, UT

FORMAL DIVERSITY TRAINING

2013 **Inclusive Excellence 2013**
8 hours Joshua Phillips
Utah State University, Logan, UT

2012 **Diversity Conversations in the Classroom**, **Workshop for Instructors**
Full day Lee Mun Wah (Executive Director of Stirfry Seminars and Consulting)
Westminster College, Salt Lake City, UT

2009 **Diversity Workshop**
Half day Mike Twohig, Ph.D. and Melanie Domenech-Rodríguez, Ph.D.
Psychology Department, Utah State University, Logan, UT

PROFESSIONAL MEMBERSHIP

American Psychological Association:
2014–present Society of Counseling Psychology (Division 17)
2011–present Asian American Psychological Association
2009–present Society for the Psychological Study of Ethnic Minority Issues (Division 45)
2009–present Society for the Teaching of Psychology (Division 2)

2007–present Psi Chi National Honor Society

RESEARCH EXPERIENCE

2014–2015 **STE^{2}M Center, Utah State University**
Collaborated with the director and other faculty members on various STEM-related projects in higher education and K–12.

2012–2013 **Higher Ed Learning and Teaching Lab, Utah State University**
Generated pedagogy approaches and collaborated on projects related to the teaching of psychology.

2010–2011 **Multi-Cultural Lab**
American Indian Support Project, Utah State University
Focused on providing support for and conducting research on minority and multicultural issues both locally and nationwide.

PUBLICATIONS

Shukla, K., Feldon, D., **Zhao, X.**, & Sun. C. (in preparation). Faculty-student authorship as a mean to enhance STEM graduate students' research skills.

Brakke, K., Houska, J., **Zhao, X.**, Kinslow, S., Clinton, A., & Campbell, D. (2015). The Power of Story as an Instructional Strategy. In K. Brakke & J. A. Houska (Eds.). *Telling stories: The art and science of storytelling as an instructional strategy*. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/

Feldon, D., Maahs-Fladung, C., **Zhao, X.**, & Sun, C. (2014). *Status of qualified science educators in Utah.* Logan, Utah: Utah State University STE^{2}M Center.

Zhao, X., & Bates, S. (April, 2012). *Warm and fuzzy makes a difference: Using syllabus tone to evaluate teaching.* Paper presented at the 2012 Intermountain Graduate Research Symposium, Logan, Utah.

Zhao, X., & Morse, G. (March, 2011). *Chinese parenting: A comprehensive review of literature.* Poster presented at 2011 Intermountain Graduate Research Symposium, Logan, Utah.

Zhao, X., McLeary, E., Stevens, T., Enno, A., Prout, K., Davies, S., Tafoya, M. & Morse, G. (Jan, 2011). *Quality of life, cultural identity, and PTSD in an American Indian sample.* Poster presented at National Multicultural Conference and Summit, Seattle, Washington.

Gilbertson, D., & **Zhao, X.** (June, 2009). *RTI multiple tiers reading strategy*. Presentation at 7th Annual Conference on Effective Practices in Special Education and Rehabilitation: Interventions across the Lifespan, Logan, Utah.

Drake, E. A., Davidson, K. S., Budowle, R. E., Geller, E. S., & **Zhao, X.** (May, 2009). *Positive vs. negative antecedent prompting for litter control: A community-based systematic investigation of relative effectiveness.* Paper presented at the 35th Annual Conference of the Association for Applied Behavior Analysis, Phoenix, Arizona.

Zhao, X., Drake, E. A., & Geller, E. S. (May, 2008). *A field evaluation of positive vs. negative litter prompts: Recycling behavioral research from the 1970's.* Paper presented at the 34th Annual Conference of the Association for Applied Behavior Analysis, Chicago, Illinois.

Drake, E. A., **Zhao, X.**, & Geller, E. S. (May, 2008). *A systematic approach to design litter control prompts: Do person factors make a difference?* Paper presented at the 34th Annual Conference of the Association for Applied behavior Analysis, Chicago, Illinois.

Zhao, X., Drake, E. A., & Geller, S. E. (October, 2007). *A community-based study of littering behavior and gender.* Poster presented at Virginia Academy of Science undergraduate research fall meeting, Richmond, VA.

Desouky, T. F., Lehman, P. K., Geller, S. E., & **Zhao, X.** (April, 2007). *Can the "Big Five" predict the behavior of introductory psychology students?* Poster presented at the Virginia Psychological Association Spring Convention, Richmond, VA.

Howard, E. H., Goodwin, C. L., Downing, C. O., & **Zhao, X.** (December, 2006). *Investigating and preventing identity theft: Intervening to increase identification-checking behaviors for credit-card purchases.* Poster presented at the annual meeting of the Maryland Association for Behavior Analysis, Baltimore, MD.