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**AN EXAMINATION OF HELP-SEEKING IN  
ENTREPRENEURSHIP EDUCATION**

A Dissertation in

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by

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## ABSTRACT

This dissertation expanded help-seeking research into entrepreneurship education and addressed understudied areas of help-seeking research. Researchers have commonly used Likert scales to measure help-seeking tendencies in many studies. However, the existing scales of executive help-seeking have been unable to distinguish executive help-seeking (seeking an answer from an external source) from avoidant help-seeking (not seeking help when help is needed) in academic contexts. Therefore, in the first study, a new scale that measured executive help-seeking is created to reflect the positive aspects of executive help-seeking, which may be more evident in entrepreneurship education. Results from the study provided two types of validity evidence to suggest that the Pragmatic Executive Help-seeking scale measures a distinct element of help-seeking.

The second study continues to provide a foundation for studying help-seeking in entrepreneurship education. A majority of help-seeking research has considered an individual's help-seeking tendencies to be fairly consistent within a given environment and has not examined how different problems may influence help-seeking behavior. However, the type of problem (i.e. interpersonal vs. technological) likely influences help-seeking behavior. Since little research exists about the types of problems that arise when working on projects within entrepreneurship education, entrepreneurial students are interviewed about their experiences in Study 2. The results indicate that students encountered several different types of problems including: cultural problems; problems evaluating or integrating information; problems obtaining or managing resources and finances; problems during the idea generation process; legal problems; problems managing or working with teammates; problems arising from a lack of prior knowledge; problems with technology; and problems managing time. The results from Study 2 inform the

creation of an instrument containing general problem scenarios that can be used to examine help-seeking intentions at a problem level.

The third study utilizes the scale and the instrument that were developed in the previous studies to test for differences in help-seeking tendencies and intention between entrepreneurial and non-entrepreneurial students. Additionally, analyses examine how the perception of problems' characteristics (i.e. problem severity, difficulty, novelty, etc.) impacts students' intention to seek help. The results of Study 3 indicate that when holding other characteristics constant, confidence in ability to overcome a problem significantly predicted help-seeking intention across all the problem scenarios. Also, entrepreneurial students had a higher intention to seek help when compared to non-entrepreneurial students.

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## Chapter 1

### INTRODUCTION

Help-seeking is an intentional action that requires individuals to: determine a problem exists; determine help is needed; decide to seek help; determine what type of help is needed; identify help sources; decide on a help source; implement a help-seeking strategy; solicit help; obtain help; and evaluate the help (Karabenick, 2014). Researchers frequently define help-seeking as a self-regulatory learning strategy (Karabenick & Newman, 2006; Karabenick & Sharma, 1994; Newman, 1994; Newman, 2000; Zimmerman, 2008; Zimmerman & Martinez-Pons, 1990). In academic contexts, help-seeking behavior relates to many successful outcomes including high performance, persistence, and self-efficacy (Newman & Goldin, 1990; Ryan & Shin, 2011). In business or organizational contexts, help-seeking behavior relates to job satisfaction, higher performance, problem solving ability, and possessing access to a larger network of associates and resources (Tyre, 1992; Tyre & Ellis, 1993).

Unfortunately, self-regulatory learning strategies, such as help-seeking, are rarely studied in entrepreneurship education (e.g., Au, Chiang, Birtch, & Kwan, 2014). Recently, however, scholars have turned their attention to defining an entrepreneurial method that describes how entrepreneurs find, approach, and solve problems (Duening & Stock, 2013). While still being conceptualized, research indicates that successful entrepreneurs need to be able to engage in self-regulatory behaviors such as establishing goals, planning actions, monitoring progress toward those goals, and evaluating and adapting their actions accordingly (Nambisan & Baron, 2013). Given the multidisciplinary nature of many entrepreneurial projects, entrepreneurs often encounter problems that fall outside of their personal area of expertise (Bae, Qian, Miao, & Fiet,

2014; Yoder, Kleine, Carpenter, & Fry, 2013), and seeking help on a new and challenging problem could make a critical difference in the trajectory of a new venture.

Since research has not yet examined help-seeking in entrepreneurship education, the purpose of this dissertation is to explore how problems and characteristics of problems impact help-seeking behavior in entrepreneurial students. After a review of the existing research, three studies are presented. The studies extend existing research and aim to make at least four contributions to the academic discourse.

In the first study, a new scale, the Pragmatic Executive Help-Seeking Scale, which measures the positive aspects of executive help-seeking, is developed. The utility of help-seeking goals and tendencies may differ when working on entrepreneurial projects than when working on more narrowly defined projects and assignments in other academic domains. For example, when working on entrepreneurial projects, it may be more prudent for entrepreneurs to find sources that provide them with answers or solutions (defined as executive help-seeking). In classrooms, this behavior is often interpreted as cheating and students are encouraged to seek hints and just enough information to allow them to continue independently (defined as adaptive help-seeking) (e.g. Karabenick & Newman 2006).

Since the norms, rules, and expectations of classroom environments differ in entrepreneurial environments, help-seeking tendencies also likely differ across contexts. Therefore, the methods and instruments of measuring help-seeking need careful examination. Previous research, in academic contexts, utilized Likert scales to measure executive help-seeking. These scales define executive help-seeking as a detrimental approach that is primarily associated with being work avoidant. However, executive help-seeking may be more practical and prevalent in entrepreneurial contexts and therefore, the first contribution of this dissertation

is the creation of a new scale measuring executive help-seeking. Initial validity evidence is provided to suggest that the new scale is able to measure a unique help-seeking tendency.

In the second study, students are interviewed, in part, to develop a new method of measuring help-seeking intention. Most help-seeking research either examines general help-seeking intentions at the classroom level by utilizing Likert scales with conditional statements (Karabenick & Knapp, 1988; 1991), or examines actual help-seeking behavior on specific problems (e.g. Beal, Qu, & Lee, 2008; Puustinen & Rouet, 2009). Since a majority of these existing studies are conducted in a math or science context (Bartholomé, Stahl, Pieschl, & Bromme, 2006; Karabenick 2003; Makitalo-Siegl & Fischer, 2011; Puustinen, Volckaert-Legrier, Coquin, & Bernicot, 2009), the problems that are studied usually have a single solution and focus on a specific piece of content or procedure. Researchers have not analyzed help-seeking behavior with different types of problems. Therefore, the second contribution of this dissertation is the creation of problem scenarios that require students to consider their help-seeking tendencies in various situations. In future research, the problem scenarios that were created and the method utilized in this dissertation could be further adapted to other contexts where students encounter a variety of complex problems.

In the final study, the instruments developed in the first two studies are utilized to compare differences between how entrepreneurial students and non-entrepreneurial students seek-help and perceive problems. As an additional contribution to the literature, this study serves as an initial step toward expanding academic help-seeking literature into entrepreneurship education. Recently, researchers have started to focus on studying and defining a method that outlines problem solving processes in entrepreneurial contexts (Duening & Stock, 2013). Results are beginning to indicate that self-regulatory strategies and behaviors such as establishing goals,

planning actions, monitoring progress toward those goals, and evaluating and adapting actions are beneficial in entrepreneurial contexts (Nambisan & Baron, 2013). Unfortunately, few self-regulatory strategies, such as help-seeking, have been examined in entrepreneurship education (e.g. Au, Chiang, Birtch, & Kwan, 2014). Because several differences exist between the projects and curriculum utilized in entrepreneurship education courses when compared to other academic domains, it is important to determine how the entrepreneurial context influences help-seeking tendencies. Understanding the help-seeking behavior and tendencies of entrepreneurial students could lead to additional research studies that would help both students and instructors identify and mitigate maladaptive behavior.

The final study makes an additional contribution to the existing research by providing insight into how the perception of problems' characteristics influences help-seeking. A majority of the research conducted about help-seeking has focused on how motivation impacts the decision to seek help (Ames & Lau, 1982; Butler, 1998; Kozantis, Desbiens, & Chouinard, 2007; Karabenick, 2004; Roussel, Elliot, & Feltman, 2011; Ryan, Gheen, & Midgley, 1998; Zusho & Barnett, 2011). Recently, researchers have been focusing on discovering and defining who students and employees prefer to seek help from (Karabenick & Knapp 1991; Keefer & Karabenick, 1998; Knapp & Karabenick, 1988; Lee, 1997; Lee, 1999; Newman & Goldin, 1990; Reeves & Sperling, 2015a; van der Meij, 1988). However, little is known about how different problems or characteristics of problems (i.e. problem severity, difficulty, novelty, etc.) influence help-seeking threat, behavior, or intentions. Since learners, especially entrepreneurial students, likely encounter many different problems when working on a project, it is important to explore the impact that the characteristics of problems have on help-seeking.

## **Chapter 2**

### **REVIEW OF LITERATURE**

This chapter describes the importance of entrepreneurship education programs and presents an overview of academic help-seeking research. Attention is devoted to presenting how context impacts the help-seeking process and individual help-seeking tendencies. A description of the differences and similarities between entrepreneurship education programs and other academic programs is provided. Definitions of help-seeking and the help-seeking process are then reviewed. The review illustrates some of the challenges of measuring help-seeking as well as weaknesses in the literature.

#### **Entrepreneurship Education**

Training and educating entrepreneurs is vital to the strength of the economy, and developing entrepreneurs has been an important national issue for many years (e.g. Torrance, 2013). Fortunately, entrepreneurship education is a growing field as indicated by the increase in the number of courses and programs offered at various universities over the last three decades (e.g. Torrance, 2013). Over 1,500 Colleges and universities offer courses that focus on entrepreneurship (Charney & Libecap, 2000).

Historically, MBA programs in business colleges offered most entrepreneurial courses and programs (Connors, & Ruth, 2012). However, many different colleges including engineering, information systems, and technology, communication, and the arts now offer entrepreneurial courses and programs that are available to undergraduate and graduate students as both majors and minors (e.g. Connors, & Ruth, 2012).

The format and content covered in these entrepreneurial courses and programs differ based on the targeted industry and the resources that are available in the local community among other factors (e.g. Noyes & Mandel, 2016). For example, some colleges and universities offer residential programs, co-working spaces, and accelerators for students, but these resources are not universally available. Entrepreneurial education programs also define entrepreneurship differently (Bygrae & Hofer, 1991; Mitchelmore & Rowley, 2010). The variety of definitions reflects the number of different markets, industries, ventures, and contexts within which entrepreneurs operate and are trained for in entrepreneurship education programs (Marin & Osberg, 2007).

Definitions of entrepreneurship have evolved over time, which has had a lasting impact on the design and evaluation of entrepreneurship education programs. Initially, definitions of entrepreneurship were based on innate personality traits that were seen to be important for entrepreneurs to possess. More recently, however, process based definitions that refer to an entrepreneurial method (Duening & Stock, 2013) and outcome based definitions (i.e. growth, creating value, financial independence, etc.) (Davidson, Delmar, & Wiklund, 2002) have become more prevalent. Some scholars and entrepreneurs still advocate for skill based definitions (e.g. McKenzie, Ugbah, & Smothers, 2007), which has contributed to ongoing debate regarding whether or not entrepreneurial skills, such as opportunity recognition or risk taking, can actually be taught (e.g. Baron & Henry, 2006; Ede, Calcich & Panigrahi, 1998; Sudikoff, 1994). There is also little consensus about what skills and characteristics are the most important for entrepreneurs to possess (e.g. Boyles, 2012). As a result, the skills, and to some degree, the content prioritized in entrepreneurial education courses and programs also varies (Noyes & Mandel, 2016).



Nevertheless, some general themes and common elements exist across entrepreneurial courses and programs when examining course objectives, course offerings, and pedagogical practices. Curran & Stanworth (1989) conducted an analysis, later updated by Wu & Jung (2008) of the stated objectives and purposes of entrepreneurship education programs. Overall, these analyses identified several common educational purposes. While some programs attempt to cover several or even all of these purposes, other programs may target only one purpose.

First, entrepreneurship education programs commonly intended to increase entrepreneurial awareness within their students. This highlights the desire for programs to dispel misconceptions about entrepreneurship, so students can make informed decisions about pursuing a career as an entrepreneur. For example, in a study that examined how students and professors defined entrepreneurship (Reeves, Zappe, Kisenwether, Follmer & Menold, 2015), students with little entrepreneurial experience perceived entrepreneurship to be focused on either inventing products, founding businesses, or being their own boss. However, professors and experienced entrepreneurs tended to have a broader definition of entrepreneurship that focuses less on profits and more on adding value to society (i.e. sustainable nonprofits, innovating distribution or manufacturing processes, etc.). Expanding students' definition of entrepreneurship would demonstrate learning and could be a positive outcome of an entrepreneurship education program (Von Graevenitz, Harhoff, & Weber, 2010).

Second, entrepreneurship education programs often attempt to teach content that would enable students to develop their own business ideas. Common topics covered in most entrepreneurial courses or programs include various business management skills including financing, accounting, marketing, management, and business law (e.g. Kriewall, 2010; Pistrui, Layer, Dietrich, 2013). Instructors design activities that connect the content directly to real world

scenarios, businesses, and ventures (Beaury, Boyer, & Kisenwether, 2010). Projects also often involve students' consulting with business owners to solve current problems (Winkel, Vanevenhoven, Drago, & Clements, 2013). In advanced entrepreneurial courses, students' often work on their own personal business ideas and ventures (Arvanites, Glasgow, Klinger, & Stumpf, 2006).

Third, programs seek to develop entrepreneurial characteristics that may be useful in a variety of related career opportunities. While the majority of students who complete entrepreneurship education programs and actually become entrepreneurs do not do so until several years after graduation (e.g. Brown, 1990), entrepreneurial skills and training are applicable, and extremely desirable qualifications, for many jobs within larger businesses or major corporations (i.e. research and development, consulting, management, etc.). As a result, entrepreneurship education projects focus on helping students develop various skills and characteristics. The exact set of characteristics that are targeted varies, but frequently mentioned skills and characteristics include opportunity recognition, risk management, public speaking, self-efficacy, and creativity (Baron & Henry, 2006; Leung, Lo, Sun, & Wong, 2012).

### **Differences Between Entrepreneurship Education and Other Academic Domains**

There are several differences between entrepreneurship courses and other academic contexts that need to be considered when applying concepts and instructional practices from other educational domains (Powell, 2013; Torrance, Rauch, Aulet, Blum, Burke, D'Ambrosio, & Zurbuchen, 2013). A comparison of two separate syllabi analyses conducted at The Pennsylvania State University highlights some of the differences in the activities and grading methods between entrepreneurship courses and engineering courses (Table 1).

Table 1: Comparison of activities and grades in engineering and entrepreneurship courses

	Engineering		Entrepreneurship	
	Percentage of Classes that Grade the Assignment	Percentage of Final Grade	Percentage of Classes that Grade the Assignment	Percentage of Final Grade
Exams	75.0	56.0	42.9	13.9
Quizzes	33.0	19.0	35.7	11.9
Projects	39.0	30.0	71.4	54.4
Assignments	12.0	24.0	83.3	26.4
Peer Evaluations	4.0	14.0	33.3	2.6

Zappe, Hochstedt, & Litzinger (2015) analyzed 145 syllabi from engineering courses in the College of Engineering and found that exams were assigned in 75% of the course syllabi and accounted for 56% of the course grade. In an analysis of 42 syllabi of entrepreneurship courses across six colleges, 42.9% of course syllabi included exams, which accounted for only 14.9% of the final grade in these courses (Reeves, Zappe, Kisenwether, & Follmer, 2015). Projects were more common (71.4% in entrepreneurship course syllabi and 39% in all engineering course syllabi) and more heavily weighted in entrepreneurship courses when compared to all engineering courses. Additionally, peer assessments were components of courses at a higher rate in entrepreneurship course syllabi (33.3%) when compared to all engineering course syllabi (4%).

Clearly, there are differences in the approach to grading. Entrepreneurship courses rely on exams at lower rates and incorporate group work and projects to a higher degree than courses representative of the engineering curriculum. This is particularly true of advanced entrepreneurial courses, which often involve interactive and experiential course activities as students work to develop their own ideas or ventures (Arvanites, Glasgow, Klinger, & Stumpf, 2006; Beaury, Boyer, & Kisenwether, 2010; Hixson, & Lesko, 2013). These courses and

activities typically require students to identify a need or solve problems with many viable solutions in an attempt to simulate the real world activities of entrepreneurs. Given that students are still working in classrooms and receiving grades when working on these real world problems, students enrolled in advanced entrepreneurial classes may experience and need to manage the norms and expectations of both academic and business environments.

With potential consequences existing both inside and outside the classroom, entrepreneurial students' goals, motivation, and help-seeking behavior may differ when compared to other academic contexts. For instance, the cost of not seeking help on a homework assignment may be a lower grade or more time spent working on the assignment. Not seeking help when a legal question arises when developing a business venture could result in a substantial financial loss. A potential cost of seeking help in a classroom is the loss of status or esteem held by the teacher or peers. Seeking help from an outside source when starting a business venture may come at the cost of a considerable financial stake in a company and presents the risk of exposing an idea to a competitor too early.

When working on entrepreneurial projects, students often encounter problems that require skills or expertise in a wide variety of fields or domains (i.e. marketing, accounting, programming, law, logistics, etc.). This contrasts with most academic courses where projects are usually constrained to a relatively small number of topics where students are required to demonstrate knowledge or mastery. Individuals will likely approach problems differently if they recognize that they are not expected to and may not be able to, learn all of the steps, processes, or content that relate to every problem. For example, an entrepreneur with expertise in software development may approach and seek help differently when encountering technological problems

compared to legal (i.e. copyright, trademarks, intellectual property, etc.) problems that occur during product development.

### **Common Educational Concepts**

Despite differences in the content taught, there are still many similarities in the goals and dilemmas that are present in both entrepreneurial education and other academic disciplines. For example, over many decades, educators have tried to find a balance of experiential activities and presentation or lecture based teaching (Dewey, 1938). Also, the cooperative learning techniques championed by educators in entrepreneurship programs are similar to the principles outlined in other academic disciplines (Drummond, 2012; Slavin, 1980). Furthermore, educators have regularly considered how to best connect course content with potential career goals and other real world experiences (e.g. Brown & Lent, 2005). Additionally, skills and characteristics such as self-efficacy (Bandura, 1982) and creativity (Kazerounian & Foley, 2007) are also important in many educational domains including science and engineering education (Simonton, 2004; Zappe, Reeves, Mena, & Litzinger, 2015). Given the similarities between the some of the educational goals, dilemmas, and pedagogical strategies used in entrepreneurship education programs and other academic programs, it would be beneficial to study how other educational concepts, such as self-regulated learning strategies, influence learning in entrepreneurship education programs.

### **Self-Regulated Learning**

Researchers have proposed several different models of self-regulated learning. A review conducted by Wolters, Pintrich, and Karabenick (2003) highlights several common elements

shared among all the models. These elements provide further insight into how the help-seeking process fits within or deviates from self-regulated learning frameworks.

First, self-regulated learning models assume that learners are active participants in the learning process. Learners make connections between external stimuli and prior knowledge, and make new connections among previously learning information. As such, self-regulated learning is most frequently situated within cognitive theories such as the information processing model (Lemerise & Arsenio, 2000; Pintrich & De Groot, 1990).

Second, self-regulated learning models propose that learners can potentially influence their own learning by planning, monitoring, and evaluating their own cognition, motivation, behavior, and/or environment (Zimmerman, 2000). However, a learner's ability to conduct these actions is dependent on biological, developmental, and environmental constraints (e.g Wolters, Pintrich, & Karabenick, 2003). For instance, young children are not as adept as older children are at regulating their own learning due to differences in cognitive development (Pintrich & Zusho, 2002). Furthermore, certain learning conditions and activities are less conducive or supportive of self-regulated learning (Church, Elliot, & Gable, 2001).

Third, self-regulated learning models indicate that learning is goal driven (e.g Wolters, Pintrich, & Karabenick, 2003). The goals are then linked directly to outcomes, which provide benchmarks from which individuals can monitor progress and, if necessary, change strategies. Therefore, given these assumptions, Wolters, Pintrich, & Karabenick, (2003) define, self-regulated learning as, “an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment” (2003, p. 5).

Recently, scholars have also proposed that the study of self-regulation and self-regulatory learning strategies would be beneficial in the context of entrepreneurship and entrepreneurship education (e.g., Baron & Henry, 2010; Mitchell, Busenitz, Bird, Gaglio, McMullen, & Morse, 2007). Some of the interest in studying self-regulation in entrepreneurship education stems from the idea that an identifiable and repeatable entrepreneurial method may exist (Duening & Stock, 2013). While researchers have not fully defined the entrepreneurial method, there is general agreement that successful entrepreneurs must be able "to select appropriate goals, to maintain consistent and persistent focus on these goals, to accurately interpret feedback on their own performance and progress, and to adjust current and future actions so as to maximize such progress" (Nambisan & Baron, 2013, p. 1078). This conceptualization of the entrepreneurial method is similar to the definition of self-regulated learning provided by Wolters, Pintrich, & Karabenick (2003).

The concepts discussed by Nambisan & Baron (2013) indicates that the entrepreneurial method closely relates to the planning, monitoring, and evaluation phases of self-regulated learning (Zimmerman, 2000). An examination of specific self-regulated learning strategies, such as help-seeking, would likely be beneficial to entrepreneurship education programs as entrepreneurs must consistently learn, adapt, and solve problems with varying levels of ambiguity (Bae., Qian, Miao, & Fiet, 2014). Despite potential contributions, only a few studies have focused on help-seeking behavior in entrepreneurially focused contexts.

### **Defining Help-Seeking**

Even though research on help-seeking needs to be expanded to other contexts such as entrepreneurship education, an abundance of research that has focused on help-seeking has been

conducted in science and mathematics classrooms. Research on help-seeking has focused on factors that influence various steps of the help-seeking process including prior knowledge (e.g. Ryan, Pintrich, & Midgley, 2001), motivation (Ames & Lau, 1982; Butler, 1998; Kozantis, Desbiens, & Chouinard, 2007; Karabenick, 2004; Roussel, Elliot, & Feltman, 2011; Ryan, Gheen, & Midgley, 1998; Zusho & Barnett, 2011), social competence (e.g. Ryan & Patrick, 2001; Ryan, Pintrich, & Midgley, 2001), source selection (Karabenick & Knapp 1991; Keefer & Karabenick, 1998; Knapp & Karabenick, 1988; Newman & Goldin, 1990; Reeves & Sperling, 2015b; van der Meij, 1988), and group norms (Karabenick, 2003; Karabenick & Knapp, 1988; Mueller & Kamdar, 2011; Newman, 2011).

However, there is not a single, universal definition of help-seeking and several definitions of help-seeking exist in the academic literature. The most frequent characterization of help-seeking is as a self-regulated learning strategy because the process requires individuals to plan, monitor, and evaluate their own knowledge and behavior (Karabenick & Newman, 2006; Karabenick & Sharma, 1994; Newman, 1994; Newman, 2000; Zimmerman, 2008; Zimmerman & Martinez-Pons, 1990). However, help-seeking is somewhat unique among self-regulated strategies as it requires varied degrees of social interaction in order to be accomplished. As a result, environmental conditions and social norms may have a greater impact on help-seeking behavior than other self-regulatory learning strategies (e.g. Hadwin, Jarvela, & Miller, 2011).

The requirement of social interaction while help-seeking is currently being contested (e.g. Karabenick, & Puustinen, 2013). A distinction is made between help-seeking information seeking in the organizational and industrial psychology literature (e.g. Lee, 1997). Help-seeking refers to a request for help from another person. Information seeking, however can consist of requests that do not require direct interpersonal interactions.



However, in the educational psychology literature, some theorists suggest that all help-seeking interactions and information seeking requests are the same (e.g. Tricot & Boubee, 2013), yet others propose that help-seeking and information seeking may encompass the same set of behaviors but differ in their level of direct social interaction (Karabenick, 2014). Since all forms of communication, even reading a textbook, involve the transmission of information from one person to another, help-seeking and information-seeking may simply exist on a continuum representing degrees of social interaction (Puustinen & Rouet, 2009).

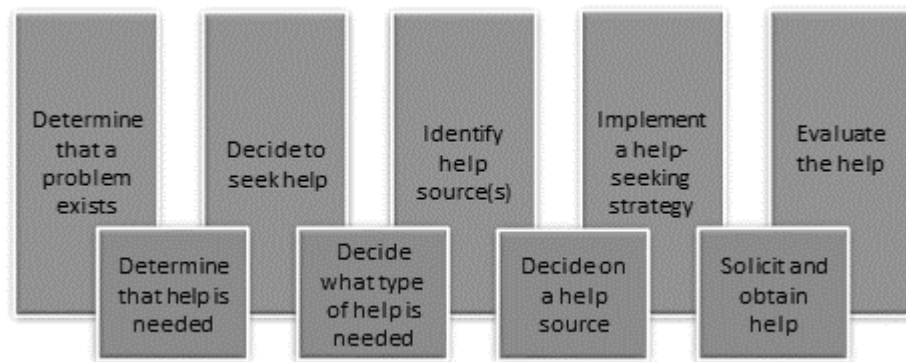
### **The Help-seeking Process**

Regardless of whether help-seeking requires social interaction or not, most researchers agree on the general steps and conditions that are involved in the help-seeking process. In order for help-seeking to occur, two conditions must exist. First, a problem, which can either be generated internally or presented externally, must be recognized. Without recognizing that the problem exists, an individual cannot intentionally solicit help (Nelson Le-Gall, 1981; Karabenick, 2014). Prior knowledge in the domain and metacognitive ability impact an individual's awareness of problems (e.g. Karabenick & Dembo, 2011, Nelson-Le Gall, 1981; Puustinen 1998). For instance, experts in a given domain may be able to easily navigate through problems that would hinder novices (Ericsson & Lehmann, 1996). Additionally, experts may be able to combine or connect complex information in order to recognize problems that may not be apparent to novices (Schoenfeld & Herrmann, 1982). Therefore, individuals with different levels or areas of expertise may perceive various characteristics of problems such as problem difficulty, severity, and novelty differently. Only a few studies, which will be described in a later section,

examine how the perception of these and similar characteristics of problems influence help-seeking.

The second condition that is required for help-seeking to occur is the availability of a source of help. If multiple sources exist, an analysis of the costs and benefits associated with each source helps to determine the best course of action (Makara & Karabenick, 2013a). It is likely that individuals consider characteristics of help-sources (i.e. in person vs technologically mediated, formal vs informal, static vs dynamic, and personal vs impersonal) in conjunction with environmental factors and problem characteristics when making the decision to seek help. Research still needs to examine how these different variables interact, however, without at least one available source, an individual will not be able to proceed with the help-seeking process.

*Figure 1: The help-seeking process*



*The large boxes represent Nelson-Le Gall's (1981) original model. The smaller boxes are additional steps added in Karabenick's (2014) model.*

If the conditions for help-seeking are present, individuals are then able to initiate the help-seeking process. The help-seeking process was first proposed by Nelson-Le Gall (1981) and contained five recursive steps: step one, an individual becomes aware of a problem; step two, the individual makes a decision to seek help; step three, the individual identifies the appropriate source of help; step four, the individual implements a strategy for getting help; and step five, the

individual evaluates the help they received. Since the time the initial model was published, a large amount of research has further increased the understanding of the help-seeking process and examined factors influencing each step of the process as depicted in Figure 1 (Karabenick, 2014).

### **Deciding to Seek Help**

The decision to seek help is complicated, individuals consider many variables simultaneously and decisions are influenced by the help-seeker's goal and an evaluation of both the available sources and other environmental features (e.g. Ryan & Patrick, 2001). In this step, the problem solver must evaluate the available resources and personal knowledge related to the problem before deciding to seek external guidance. An individual may decide to continue to proceed independently with the belief that the problem can be solved or completed without seeking help. The individual may then recognize that progress is impossible after attempting to work independently and decide to seek help at a later time. During this first stage, an individual conducts a series of cost-benefit analyses. The costs and benefits of approaching each source and the costs and benefits of the decision to seek or not to seek help must all be considered.

While not researched as extensively, the costs and benefits of not seeking help are fairly straightforward in a classroom setting (Karabenick, 2014). The primary costs of not seeking help include a greater probability of failure and more time and effort spent trying to find a solution. On the other hand, the benefits of not seeking help include: avoiding feelings of indebtedness to the help sources (e.g. Parris, 2003); avoiding potential damage to self-worth and reputation that occurs when admitting need (e.g. Ryan, Pintrich, & Midgley, 2001); gaining a sense of pride and

accomplishment when solving the problem independently (e.g. Butler, 1998); and increasing personal knowledge (e.g. Karabenick, 2014).

In other situations, obtaining help may be more beneficial than not seeking help. By seeking help, the individual will potentially be able to either complete the problem more efficiently or overcome obstacles that would have otherwise stunted progress (Knapp & Karabenick, 1988). Depending on the type of help that is needed and provided, the individual will still be able to increase skills and knowledge. Ideally, in academic contexts, students will only ask for and teachers will only provide enough information to help students move past their current difficulty so that they can resume working on the problem independently. This is similar to the Vygotskian notion of scaffolding that is familiar to many educators (Wood, Bruner, & Ross, 1976), but instead of teachers designing scaffolded instruction, students initiate the interaction and direct the dialogue by expressing their needs.

An individual's help-seeking goals also influence the evaluation of the costs and benefits of seeking help. Help-seeking goals are usually determined based upon self-reported help-seeking tendencies, which researchers typically classify as being either adaptive, executive, or avoidant (Butler, 1998; Newman, 2002; Newman & Schwager, 1995; Ryan, Gheen, & Midgley, 1998; Ryan & Pintrich, 1997; Ryan & Shin, 2011). Table 2 presents the definitions of these three tendencies.

### **Adaptive Help-seeking**

Adaptive help-seeking tendencies are defined as the penchant for asking for just enough help to overcome obstacles (i.e. hints) and usually occur only after the individual first attempts to succeed independently (Newman, 2002; Zusho & Barnett, 2011). In academic settings, several

factors predict adaptive help-seeking tendencies including high academic achievement, high self-esteem, and high self-efficacy (Roll, Alevan, McLaren, & Koedinger, 2011; Ryan & Shin, 2011).

Table 2: Definitions of help-seeking tendencies

	Definition	Description	Other labels
Adaptive Help-seeking	Help-seeking behavior that occurs when individuals intend to decrease the need for subsequent help or assistance.	<ul style="list-style-type: none"> <li>• Goal is learning or understanding</li> <li>• Individual seeks just enough help to overcome the current problem</li> <li>• Help is needed</li> <li>• Usually occurs after independent problem solving attempts are made</li> </ul>	<ul style="list-style-type: none"> <li>• Instrumental</li> <li>• Necessary</li> <li>• Appropriate</li> <li>• Strategic</li> <li>• Autonomous</li> </ul>
Executive Help-seeking	Help-seeking behavior that occurs when individuals intend to acquire answers in order to reduce their workload.	<ul style="list-style-type: none"> <li>• Goal is focused on the outcome</li> <li>• Individual is attempting to reduce their effort level</li> <li>• Individual usually will become dependent on the help source</li> </ul>	<ul style="list-style-type: none"> <li>• Convenient</li> <li>• Dependent</li> <li>• Work-Avoidant</li> <li>• Excessive</li> <li>• Expedient</li> <li>• Ability focused</li> </ul>
Avoidant Help-seeking	Behavior that occurs when individuals recognize the need for help and choose not to seek help.	<ul style="list-style-type: none"> <li>• Goal is protecting self-worth</li> <li>• Help is needed</li> </ul>	-

The benefit of adaptive help-seeking is getting information about the process that is needed to obtain a solution instead of just receiving the solution. Individuals with adaptive help-seeking tendencies seek help more often than avoidant and executive help seekers. One possible reason is the notion that adaptive help seekers do not believe that acts of seeking help reflect their true

ability level (Ryan, Pintrich, & Midgley, 2001). In other words, to these individuals seeking help from others is not an indication of incompetence and does not drastically reduce their self-esteem.

Adaptive help-seeking is often viewed more favorably in academic contexts when compared to executive help-seeking (Kozantis, Desbiens, & Chouinard, 2007; Newman, 2000; White & Bembenuddy, 2013). Instructors are often more willing to provide help when adaptive help-seeking is sought because it indicates a willingness to learn. When seeking adaptive help, students do not appear to be attempting to avoid work or learning difficult concepts (White & Bembenuddy, 2013). In essence, adaptive help-seeking reinforces the goals of the classroom and educational process by promoting individual learning and independent problem solving.

However, when working on complex problems or encountering issues that require skills or knowledge that falls outside of an individual's particular discipline, learning all of the content and processes that are needed to arrive at the optimal solution may require an excessive amount of time and effort to complete. Therefore, in situations where learning and acquiring new skills is not the primary objective (i.e. the goal is to make money, starting a business, following paper formatting guidelines, etc.), adaptive help-seeking may not always be the ideal help-seeking goal.

### **Executive Help-seeking**

Executive help-seeking occurs when individuals recognize that a problem exists and are interested in reducing the amount of time and effort required to complete the task without necessarily learning the content or processes that led to the solution (Butler, 1998; Karabenick, 2004; Nelson-Le Gall, 1981). Essentially, executive help seekers prefer that external sources

solve problems for them (White & Benbenutty, 2013). This enables help seekers to have the problem solved quickly and accurately and allows them to direct their focus, time, and effort to other tasks or problems.

In academic classroom environments, executive help-seeking behavior is usually discouraged and often interpreted as cheating (e.g., Kozantis, Desbiens, & Chouinard, 2007). Since instructors often respond negatively to executive help-seeking and may intentionally or unintentionally discourage these requests, students may be reluctant to seek executive help given the norms within many classrooms (White & Benbenutty, 2013). As a result, executive help-seeking is understudied in educational contexts because executive help-seeking behavior becomes undistinguishable from avoidant help-seeking behavior. In essence, individuals with executive help-seeking tendencies either stop seeking help altogether or simply do not self-report their help-seeking behavior and appear to possess avoidant help-seeking tendencies.

Executive help-seeking behavior seems most common when students work in peer groups (e.g. Oortwijn, Boekaerts, Vedder, Strijbos, 2008) or when students utilize computer programs that provide the next step or solution to problems (Beal, Qu, & Lee, 2008). However, in the research that focuses on executive help-seeking, these tendencies are linked to less desirable academic outcomes than adaptive help-seeking (Butler, 1998; Karabenick, 2003; Magnusson & Perry, 1992).

Outside classrooms, executive help-seeking may be considered more acceptable and occur more frequently. In business and entrepreneurial environments, for example, executive help-seeking may be more beneficial in some situations when compared to adaptive help-seeking, especially when the problems that arise are outside of an individual or company's area of expertise. For example, when seeking help on a legal problem, it may be more productive to

an overall project to consult with an attorney or send the problem to the company's legal department, who will simply provide the answer or solve the problem. Executive help-seeking may be particularly worthwhile when nonrecurring problems arise since learning the process behind the solution would not have much future utility. Help-seekers can then allocate their time and resources to other issues, rather than to problems that someone with specialized training or knowledge could solve more quickly or more easily.

### **Avoidant Help-seeking**

Avoidant help-seeking tendencies indicate the propensity to decide not to seek help even after recognizing that help is needed (Newman, 2006; Ryan, Gheen, and Midgley, 1998; Karabenick, 2003; 2004). Ryan, Pintrich, & Midgely (2001) reviewed factors that contribute to avoidant help-seeking tendencies and found that avoidant help seekers often possessed a low perception of their cognitive or social abilities, identified themselves with a performance goal orientation, and were extremely concerned with the opinions of their peers and teachers. Since individuals with avoidant help-seeking tendencies often believe that asking for help is an indication of incompetence, these individuals may be reluctant to seek help in an attempt to hide their weaknesses from others.

Unfortunately, individuals who fail to ask for help, when needed, may subsequently fail to fully understand concepts and limit their ability to solve problems. In academic contexts, avoidant help-seeking behaviors are linked to poor academic performance, and are consequently less desirable than adaptive help-seeking behaviors (Karabenick & Knapp, 1991; Ryan et al. 1997; Ryan, Pintrich & Midgley, 2001). In industry, avoiding seeking help results in lower job performance ratings, higher turnover, and less job satisfaction (Tyre, 1992; Tyre & Ellis, 1993).



Avoidant help-seekers perceive that the costs of seeking help outweigh the benefits. The costs for seeking help often involve either avoiding public humiliation or preventing the creation of the public perception that they are unknowledgeable or incapable of proceeding independently. These negative feelings and perceptions define help-seeking threat (Fisher, Nadler, & Witcher-Algana, 1982; Karabenick & Knapp, 1991; Karabenick & Newman, 2009; Kitsantas & Chow, 2007).

### **Help-seeking Threat**

Scholars define help-seeking threat as the perceived loss of status or esteem that occurs as a result of seeking help (Fisher, Nadler, & Whicher-Algana, 1981; Karabenick & Knapp, 1991; Kitsantas & Chow, 2007). Individuals may experience threat regardless of their help-seeking goals, but threat is strongly associated with avoidant-help-seeking tendencies, which partially explains why avoidant help seekers ask fewer questions (Karabenick & Newman, 2009).

Many factors including gender, age, and perceived social competence influence help-seeking threat (Ryan, Pintrich, & Midgley, 2001). For instance, in unfamiliar learning environments, when students feel less comfortable or supported, both teachers and peers are perceived to be more threatening (Karabenick, 2004; Ryan et al., 1998). Additionally, competitive environments increase the threat of help-seeking because opposing teams or individuals may be less willing to provide adequate help. Environments that utilize norm-based evaluations also make help-seeking more threatening because of potential damage to both reputation and self-worth (Ryan, Pintrich, & Midgley, 2001; van der Meij, 1988). Within a given environment, help-seeking threat may be more strongly associated with a particular help source (Newman & Goldin, 1990; Makara & Karabenick, 2013a).

## **Evaluating Help Sources and the Learning Environment**

While considering help-seeking goals, individuals must evaluate and select an appropriate help-seeking source. Generally, help seekers are looking for sources that will be supportive and provide quick, relevant help that is congruent with their help-seeking goals (Newman, 1998). When multiple sources of help are available, help-seekers must select a source. Help-seeking source preferences are impacted by characteristics of the help source, features of the environment, and the learner's level of cognitive and social competence (e.g. Ryan & Patrick, 2001).

In elementary and secondary school classrooms, students traditionally have access to two help-seeking sources: the teacher and their peers. The preferred source of help differs somewhat based on age and classroom structure, but generally, younger students prefer to seek help from the teacher while older students prefer to seek help from peers (Newman & Goldin, 1990; Newman & Schwager, 1993). From these findings, younger students, in particular, viewed teachers as more competent and less judgmental. As students got older, they were better able to recognize competent peers, desired more immediate feedback, placed more value on peer relations, and often wanted help presented in a relatable manner, preferably at their level of understanding.

However, the preferred source of help for college students is less clear. Karabenick (2003) conducted a cluster analysis on responses from college students enrolled in a large introductory class to determine their preferred help-seeking source. Results indicated that students who wanted to understand the material tended to seek help from the instructors, while students who desired executive help tended to seek help from less formal sources, such as peers.

Researchers still need to conduct studies that examine student preferences when teacher's aides, teaching assistants, advisors, and other sources of help are available at the university level.

Studies of this nature would be beneficial for both instructors and administrators when determining how to efficiently allocate precious school and classroom resources.

Kistsantas & Chow (2007) examined help-seeking in traditional, distance, and blended college classrooms and found that students in courses with online components sought more help and were less threatened by seeking help. Additionally, students reported that they preferred to seek help electronically rather than in person. However, Marakara & Karabenick (2013b) asked college students about their preferred help-seeking sources and found that students preferred hard copy class materials as a reference compared to online materials and even preferred seeking help in person with peers more than online with peers. While researchers need to clarify this discrepancy in future studies, interestingly, the overall trend indicated that students preferred informal sources of help (i.e. sources that are not required to give help), regardless of whether the source was face-to-face or technologically mediated, which stresses the importance of examining help-seeking sources across a variety of characteristics or dimensions (Makara & Karabenick, 2013b).

Existing studies have differentiated among adaptive, avoidant, and executive help-seeking when examining preferred help sources. Reeves & Sperling (2015a) found that avoidant help-seeking was negatively related to intention to seek help with the instructor via face-to-face interactions. Adaptive help-seeking was positively related to intention to seek help with instructor via face-to-face interactions (during class, before/after class, or during office hours). However, there were not any significant correlations between adaptive or avoidant help-seeking and intention to seek help with computer mediated interactions (email, online discussion board,

and online office hours). Executive help-seeking was not measured. Therefore, it is possible that students with different help-seeking tendencies prefer to utilize different sources. However, source preferences are also likely influenced by characteristics of the source as well as social norms of the environment.

Unfortunately, the preferred help-seeking sources of entrepreneurs and students in entrepreneurship education programs has not been examined. Findings in related fields, such as small business and business education, indicate that organizational hierarchies influence help source selection (Lee, 1997 & 2002). Employees are reluctant to seek help from individuals across power levels (Bunderson & Reagans, 2011). Consequently, it is relatively rare for individuals to seek help from bosses, supervisors, or superiors who evaluate job performance. Additionally, it is uncommon, in most companies, for workers to seek help from subordinates because either they view their employees as unknowledgeable or they have an unwillingness to appear unknowledgeable to the people they are leading (Lee, 1997 & 2002). Therefore, peers at the same organizational level are the most common help sources in these businesses.

The effect that hierarchies have on help-seeking can be mitigated somewhat in companies with more of a collectivist culture that does not only value individual performance incentives (Bunderson & Reagans, 2011). Companies with more collectivist cultures typically work in teams with a large amount of task interdependence, which ensures that workers have a common goal. Research indicates that both performance and help-seeking behavior increases when working on projects where individuals have both individual and group goals and incentives (Cleavenger, Gardner, & Mhartre, 2007; Druskat & Pescosolido, 2002). These findings parallel research on cooperative learning in classrooms, which also indicates the academic benefits of utilizing both individual and group goals and incentives (e.g. Slavin, 1980).

In these contexts, social norms influence both the decision to seek help and the source individuals prefer to approach for help. For instance, if students are sitting in a lecture, they may decide to ask a classmate instead of interrupting the lecture. Unsurprisingly, environments in which individuals are unable or restricted from interacting with each other or other help sources are not as conducive for help-seeking behavior (e.g. Ryan, Pintrich, & Midgley, 2001). Group work and projects allow students opportunities to interact and are one method of increasing help-seeking behavior (e.g. Cleavenger, Gardner, & Mhartre, 2007; Druskat & Pescosolido, 2002). Similarly, mastery-orientated contexts that encourage interactions are generally more conducive help-seeking environments (Karabenick, 2003; Newman, 2011). In contrast, competitive environments discourage help-seeking behavior because in these situations, individuals are especially reluctant to show that they are struggling (Bamberger & Levi, 2009).

Another method of increasing help-seeking interactions is to make help sources more recognizable or apparent to the help seeker. For instance, when studying help-seeking behaviors with on-demand help-seeking programs, Alevan & Koedinger (2001) discovered that students who were unfamiliar with using computers or with the features of the program (i.e. instant messaging, hyperlinks) would not use those features. When researchers designed a tutorial to instruct users on how to use the features and highlighted their potential benefit, help-seeking behaviors increased. Similar patterns occur when students are immersed in other situations; for example, students who attend seminars with librarians and learn about the library's resources are more likely to utilize those resources for help (e.g. Tricot & Boublee, 2013). Familiarity with sources allows peers to offer help and provides opportunities for reciprocation as help givers (Karabenick & Knapp, 1988; Mueller & Kamdar, 2011). Therefore, environments that are

supportive and collaborative, with sources that are available, apparent, and knowledgeable will likely produce more help-seeking interactions.

### **Formulating the Help-seeking Strategy, Executing the Strategy, and Evaluating Help**

When multiple sources of help are available, it becomes crucial to carefully consider and plan how to approach and interact with help sources in a manner that will provide the greatest chance of reaching goals (Nelson-Le Gall, 1981; Karabenick, 2014). For example, an individual may need to determine how to phrase a question and decide when to approach the source. This step may be more important in some situations and with some sources than others, where very little planning actually needs to occur (i.e. pressing a help button on a screen). Unfortunately, researchers have yet to thoroughly examine this planning stage. Additionally, more research needs to be conducted to how students identify a strategy to seek help. This becomes particularly important in environments, such as entrepreneurship and entrepreneurship education, where multiple sources of help and multiple methods of soliciting help or information from those sources are present.

After formulating a strategy, individuals then must execute the plan and evaluate the help that they received to determine if it would help them reach their individual goals (Nelson-Le Gall, 1981; Karabenick, 2014). If the help does enable them to reach to their goal, then individuals can proceed independently and exit the help-seeking process. If the help received led to more questions, individuals must again recognize that additional help is needed, thereby demonstrating the recursive nature of the help-seeking process.

If the selected source or method of seeking help is ineffective, individuals must be able to monitor and diagnose the situation. The failure could be due to either their execution of their

help-seeking plan or to some inadequacy of the source. Individuals must retain this information in order to help inform future help-seeking encounters. As progress is made through the help-seeking process the second time, additional information is available about both the quality of the source and possibly a little more knowledge as a result of the initial help that was received. Unfortunately, few studies examine the subsequent help-seeking behavior of individuals after they have received unhelpful or irrelevant help. However, there is some evidence to suggest that students will have a decreased likelihood to seek help after the first attempt in order to lessen any negative impact a second attempt would have on their self-esteem or public image (e.g. Newman & Goldin, 1990). Whether individuals in other contexts, such as entrepreneurship or entrepreneurship education, also have a reduced likelihood of seeking help multiple times for the same issue is currently unknown.

### **Research Presented in the Following Chapters**

While much is known about the first several steps of the help-seeking process, several gaps need to be addressed. For example, most research has examined factors that influence the decision to seek help in science and mathematics classrooms. Research should be expanded to other domains, including entrepreneurship education. Scholars have indicated that self-regulated learning strategies and skills related to help-seeking would be beneficial to entrepreneurs and entrepreneurial students (e.g. Baron & Henry, 2010; Mitchell et al., 2007). The studies described in the next several chapters of this dissertation represent an initial step of expanding help-seeking research into entrepreneurship education.

Due to the differences between entrepreneurial education courses and other courses, several considerations need to be addressed. First, the methods and instruments of measuring

help-seeking need to be carefully evaluated. Since help-seeking tendencies are influenced by the norms of the environment, executive help-seeking may be more prevalent in an entrepreneurial context. Unfortunately, existing scales measuring executive help-seeking are unable to differentiate between avoidant and executive help-seeking. In Chapter 3, a review of how help-seeking has been measured is presented along with a description of the development of a new executive help-seeking scale.

Second, is unlike other academic domains, such as science and math problems that arise when working on entrepreneurial projects do not often have a single correct answer or solution path. As a result, it is important to examine the types of problems that entrepreneurial students encounter when working on projects. In Chapter 4, a brief review that examines common problems that occur in small business and entrepreneurial ventures is presented followed by an interview study that examines common problems that entrepreneurial students encounter when working on problems. It is expected that entrepreneurial students encounter a wide variety of different types of problems when working on projects. The interview results are then used, in part, to develop a method to measure help-seeking with specific problems (e.g. Beal, Qu, & Lee, 2008; Puustinen & Rouet, 2009).

Finally, given that learners, especially entrepreneurial students, encounter many different problems when working on projects, it is important to explore the impact that the characteristics of problems have on help-seeking. In general, little is known about how different problems or characteristics of problems (i.e. problem severity, difficulty, novelty, etc.) influence help-seeking threat, behavior, or intentions. Chapter 5 utilizes the measurement tools developed in Chapters 3 and 4 to examine the following three research questions.



- 1) How do entrepreneurial students and non-entrepreneurial students who are categorized as possessing either adaptive, avoidant, or executive help-seeking tendencies perceive problems differently?
- 2) How does help-seeking intention differ in entrepreneurial students and non-entrepreneurial students?
- 3) What problem characteristics predict an individual's intention to seek help?

## Chapter 3

### STUDY 1: EXECUTIVE HELP-SEEKING SCALE DEVELOPMENT

#### Measurement of Help-seeking with Self-Report Scales

When examining help-seeking behavior or intentions as a trait, researchers usually measure general help-seeking behavior or intention within a given environment. Although, there is very limited evidence to suggest that the trait of help-seeking is consistent across different contexts, help-seeking is measured as if the help-seeking tendencies are consistent for all problems in a given environment. For instance, Newman & Goldin (1990) examined help-seeking behavior among elementary school students by asking whom they would prefer to seek help from if they needed help with the content. As another example, Ryan, Patrick, & Shim (2005), measured how students' general help-seeking tendencies related to several measures of motivation, achievement, and efficacy in mathematics classrooms.

In the vast majority of these studies, researchers utilized self-report survey data with conditional stems (i.e. "If I were having trouble understanding the material in this class, I would ask someone who could help me understand the general ideas." and "If I didn't understand something in this class I would guess rather than ask someone for assistance" (Karabenick & Knapp, 1991) to measure general help-seeking. Individuals respond to these prompts on a Likert scale and consider their typical behavior when encountering difficulties in a particular classroom or subject.

Karabenick & Knapp (1988, 1991) pioneered the use of conditional stems in help-seeking research to account for the need for help. Since higher achieving individuals are less likely to need help, but are also more likely to ask for help when it is needed than their lower achieving peers (Butler & Neuman, 1995; Karabenick & Knapp, 1991; Newman, 1990; Newman &

Goldin, 1990; Ryan et al., 1997; Ryan & Pintrich, 1997), researchers need to be able to account for an individual's need for help. Karabenick & Knapp (1988, 1991) found that use of conditional statements produced similar results with actual help-seeking behavior when controlling for need for help. Consequently, researchers commonly measure intention to seek help, help-seeking threat, adaptive help-seeking tendencies, and avoidant help-seeking tendencies with this type of scale (Karabenick, 2004; Kistantas & Chow, 2007; Puustinen, 1998; Zusho & Barnett, 2011).

### **Measurement of Executive Help-Seeking**

Executive help-seeking is not measured as frequently as avoidant and adaptive help-seeking in academic contexts (e.g. Ryan & Shim, 2011). Research has found that it is difficult to identify executive help-seeking tendencies in academic settings. For instance, Karabenick (2003) conducted a cluster analysis using responses from students on scales measuring help-seeking threat, and adaptive, avoidant, and executive help-seeking and motivational variables. In the study, the executive help-seeking scale correlated highly and positively with performance avoidance goals, avoidant help-seeking tendencies, and help-seeking threat. Additionally, participants with high scores on the avoidant and executive help-seeking scales clustered together and were not distinguishable. The analysis classified students as help-seeking and work avoidant.

Several other studies have reported similar academic outcomes for executive and avoidant help-seeking (Butler, 1998; Karabenick, 2003; Magnusson & Perry, 1992). The results of these studies may be partially explained by the norms that exist in many classrooms. Since instructors often respond negatively to executive help-seeking and may intentionally or

unintentionally discourage these requests (or consider them correctly or incorrectly to be cheating), students may be reluctant to seek executive help given the norms within academia (White & Bembenuddy, 2013). Since individuals with executive help-seeking tendencies stop seeking help altogether, executive help-seeking becomes undistinguishable from avoidant help-seeking behavior.

However, findings from observational research studies confirm these tendencies and distinguish among different types of help-seeking tendencies. For example, Nelson-Le Gall & Glor-Scheib (1983) observed elementary school students of different ability levels to determine differences between both the type of help that students sought and the type of response that teachers provided. In the study, lower ability students sought the least amount of help and were considered avoidant. Average ability students sought the most help and were the most persistent in their attempts to seek help. Low and average ability students were more likely to seek help from peers than their higher ability peers. When seeking help from peers, students were more likely to engage in executive help-seeking and simply ask for answers or copy off other students' work without wanting an explanation. Help-seeking interactions initiated by higher ability students and interactions directed to teachers were more likely to be adaptive in nature. However, if students were unable to get the attention of the teacher, they would often seek executive help from peers.

In other studies, teacher's retroactive rating of students' questions and help-seeking interactions also resulted in three unique classifications of help-seeking tendencies. For example, Ryan, Patrick, & Shim (2005) provided math teachers with rating scales to measure their students' general help-seeking tendencies. Teachers indicated that 65% of their students regularly engaged in adaptive help-seeking, 22% of students tended to avoid help-seeking, and

13% of students engaged in executive help-seeking by asking for direct answers. Teacher ratings of executive help-seeking primarily represented students who made excessive requests for help or who made requests that occurred immediately after encountering a problem. The researchers also found that teachers' rating of student help-seeking, was able to differentiate students based on measures of social relationships, self-efficacy, and achievement that utilized student self-report data.

Since executive, avoidant, and adaptive help-seeking have been observed and are also theoretically distinct (e.g. Nelson-Le Gall, 1981; Karabenick & Knapp, 1991; Karabenick, 2014), it is likely that the items and scales that have been used to measure avoidant and executive help-seeking in past research are unable to measure different tendencies. Strong correlations between scores on the avoidant and executive help seeking scales in previous studies and the inability to differentiate students on these tendencies (Karabenick, 2001, 2003; 2004) suggest that a new executive help-seeking scale needs to be developed to measure these unique help-seeking tendencies. A new scale that measures the potentially positive and beneficial aspects of executive help-seeking interactions would be valuable to researchers and instructors by providing additional insight into the help-seeking process in various contexts.

### **Purpose of the Study**

The purpose of this study is to develop a new scale that measures executive help-seeking. It is expected that the new scale will measure a distinct construct that differs from adaptive and avoidant help-seeking. Initial validity evidence is provided that indicates that the new scale is able to measure a unique help-seeking tendency, so that the scale might be used to distinguish executive help-seeking tendencies in future studies.

### **Item Development for the Pragmatic Executive Help-seeking Scale**

The new Pragmatic Executive Help-seeking Scale was constructed to resemble the structure and format of existing scales that measured adaptive (Ryan & Pintrich, 1997) and avoidant (Karabenick, 2001) help-seeking tendencies. As a result, Pragmatic Executive Help-seeking Scale consists of five items and utilizes a five point Likert scale. Additionally, consistent with existing scales (recent research), the new executive help-seeking scale included conditional statements to control for the need for help (e.g. Karabenick & Knapp, 1988; 1991).

To guide the development of the Pragmatic Executive Help-seeking Scale, research articles that defined or operationalized executive help-seeking were reviewed. In total eighteen articles were reviewed (Batholome, Stahl, Pieschl, & Bromme, 2006; Butler, 1998; Karabenick, 2003; Karabenick, 2004; Karabenick, 2011; Karabenick, 2014; Karabenick & Knapp, 1991; Kozantis, Desbiens, & Chouinard, 2007; Magnusson & Perry, 1992; Makitalo-Siegl & Fischer, 2011; Nelson-Le Gall, 2006; Oortwijn, Boekaerts, Vedder, & Strijbos, 2008; Puustinen, 1998; Puustinen, Bernicot, & Bert-Erboul, 2011; Puustinen & Rouet, 2009; Reeves, 2014; Roll, Aleven, McLaren, & Koedinger, 2011; White & Bembenutty, 2013). In all of the articles, the definition indicated (at least in part) that executive help-seeking occurs when the help requested intends for someone else to solve the problem. As a result, three questions were developed that support this definition (If I get stuck on something, I seek help so the problem can be solved accurately by an external source. If I need help when working on problems, I usually ask questions so that an external source can provide a solution; If there is something I do not understand, I prefer an external source give me the answer so that I can continue to make progress).

Interestingly, only three of the articles even suggested that executive help-seeking could potentially be beneficial in the right environment (Butler, 1998; Karabenick & Knapp, 1991; Karabenick, 2014). Karabenick (2014) indicated the two main benefits of executive help-seeking were reducing the time and effort needed to complete a problem. Two statements were written to address these benefits (When I do not understand something, I seek help so the problem can be solved quickly by an external source; If I get stuck on a problem, seeking help allows me to concentrate on other problems).

## **Participants**

Participants were recruited from two introductory courses in Educational Psychology at a public, state-related American research university. Undergraduate students ( $n = 159$ ) from 22 different majors voluntarily participated in the study for extra credit (1% of course grade). The sample included 140 women and 19 men. Participants identified their ethnicity as being White ( $n = 140$ ), Hispanic or Latino ( $n=6$ ), Black or African American ( $n = 4$ ), and Asian ( $n = 9$ ). Participants represented all levels of students at the university with participants in their first ( $n = 2$ ), second ( $n = 62$ ), third ( $n = 20$ ), fourth ( $n = 38$ ), fifth ( $n = 12$ ), sixth ( $n = 17$ ), seventh ( $n = 1$ ), eighth ( $n = 4$ ), ninth ( $n = 2$ ), and tenth ( $n = 1$ ) semesters at the university. Only three participants indicated that they intended to complete a minor in entrepreneurship and only three students indicated that they had completed a course related to entrepreneurship. Further, only one participant indicated having ever owned a business.

## Measures

Participants completed a demographic questionnaire and four Likert scales that measure: executive help-seeking tendencies (The Pragmatic Executive Help-seeking Scale Appendix; A); adaptive help-seeking tendencies (Appendix B); avoidant help-seeking tendencies (Appendix C); and help-seeking threat (Appendix D).

Help-seeking threat was measured with the use of a scale developed by Karabenick & Knapp (1991). The scale consists of six items ( $\alpha=.88$ ) on a five point Likert scale (1=strongly disagree through 5=strongly agree). The original scale was found to be reliable when used with college students ( $\alpha =.74$ ) and has demonstrated similarly high reliability in numerous other studies (Karabenick & Knapp 1991; Karabenick, 2003; Karabenick, 2004; Reeves & Sperling, 2015b). The scales were developed with the assumption that individuals with low self-esteem are more threatened by having to seek help and are therefore less likely to seek help than people with high self-esteem (e.g. Fisher et. al 1982; Nadler & Fisher, 1986). Initial validity evidence was demonstrated with significant, negative correlations between the scale and a measure of self-efficacy (Karabenick, & Knapp, 1991). When examining the relationship between the help-seeking threat scale and other variables, significant negative correlations were found between scores of help-seeking threat and both intention to seek help and adaptive help-seeking. Similarly, help-seeking threat was positively correlated with avoidant help-seeking tendencies (Karabenick & Knapp 1991; Karabenick, 2003; Reeves & Sperling, 2015b).

Adaptive help-seeking tendencies were measured with the use of a scale developed by Ryan & Pintrich (1997). The scale consists of five items ( $\alpha = .71$ ) answered on a five point Likert scale (1 = strongly disagree through 5 = strongly agree). The original scale was found to be reliable when used with elementary students ( $\alpha =.77$ ) (Ryan & Pintrich, 1997) and the scale



has demonstrated similar high reliabilities in numerous other studies with college age students (Ryan & Shim, 2012; Reeves & Sperling, 2015b). In the original study, factor analysis indicated that these adaptive items loaded on a separate scale than items meant to measure avoidant help-seeking. Scores on the scale also correlated positively with items to measure perceived benefits of help-seeking and negatively with help-seeking threat from teachers and with avoidant help-seeking tendencies. Similar results were found with college age students in both online and traditional learning environments (Reeves & Sperling, 2015b).

Avoidant help-seeking tendencies were measured with the use of a scale developed by Karabenick (2001). The scale consists of five items ( $\alpha=.86$ ) on a five point Likert scale (1 = strongly disagree through 5 = strongly agree). The original scale was found to be reliable ( $\alpha = .77$ ) (Karabenick, 2001) and has demonstrated similarly high reliability in numerous other studies (Karabenick, 2003; 2004; Reeves & Sperling, 2015b). Scores on the scale correlated positively with items measuring help-seeking threat and negatively with items measuring adaptive help-seeking tendencies. Similar results were found with college age students in both online and traditional learning environments (Reeves & Sperling, 2015b).

Executive help-seeking tendencies was measured with the use of the Pragmatic Executive Help-seeking Scale. The scale consists of five items ( $\alpha=.79$ ) on a five point Likert scale (1=strongly disagree through 5=strongly agree).

## **Procedure**

The institutional review board approved the design (STUDY00003503). Participants were recruited from two introductory educational psychology classes. To encourage participation, students who completed the survey were awarded extra credit worth 1% of their

final grade. Students who did not want to participate in the study could complete an alternative assignment to earn the same amount of credit.

The surveys were distributed during the fourth week of classes and remained active for two weeks. Participants gave implied consent to participate in the study by logging into Qualtrics, a survey presentation website. Participants could log into the website at any time, on any computer with internet access. The participants could take as much time as they needed to complete the survey. However, the survey needed to be completed all in one sitting. Students provided their email address and name in order to receive extra credit and to ensure that students did not attempt to complete the survey more than one time

## Results

Table 3: Study 1 - Item level descriptives for the new executive help-seeking scale.

Item	Mean	Standard Deviation
1 If I get stuck on something, I seek help so the problem can be solved accurately by an external source.	3.82	.77
2 When I do not understand something, I seek help so the problem can be solved quickly by an external source.	3.72	.82
3 If I get stuck on a problem, seeking help allows me to concentrate on other problems.	3.57	.89
4 If I need help when working on problems, I usually ask questions so that an external source can provide a solution.	3.75	.83
5 If there is something I do not understand, I prefer an external source give me the answer so that I can continue to make progress.	3.47	.98

Table 3 contains item level means and standard deviations for the new scale. The mean rating for each item was between 3 (neither agree nor disagree) and 4 (agree). The fifth item on the scale had the lowest mean (3.47) and highest standard deviation (.98). Despite the mean difference between the highest and lowest item mean, removing any item from the scale would have reduced the reliability coefficient.

Descriptive statistics for each of the four scales are included in Table 4. The highest mean occurred on the adaptive help-seeking scale ( $M = 19.93$ ,  $SD = 2.94$ ). The mean on the executive help-seeking scale ( $M = 18.33$ ,  $SD = 3.19$ ) was considerably higher than the avoidant help-seeking scale ( $M = 11.21$ ,  $SD = 3.64$ ) and help-seeking threat ( $M = 12.59$ ,  $SD = 4.70$ ).

Table 4: Study 1 - Scale level descriptive statistics

Measure	Mean	SD	Number of Items
Adaptive	19.94	2.94	5
Avoidant	11.21	3.64	5
Executive	18.33	3.19	5
Threat	12.59	4.70	6

Table 5 contains the correlations between all four scales. Scores on the Pragmatic Executive Help-seeking Scale were only significantly correlated with scores on the adaptive help-seeking scale  $r(157) = .16$ ,  $p = .02$ . The correlation between the executive help-seeking scale and the avoidant help-seeking scale  $r(157) = -.13$ ,  $p = .06$  was not significant. The weak correlation coefficients between executive help-seeking and the other two help-seeking tendencies were weak, which provides some evidence to suggest that the Pragmatic Executive Help-seeking Scale measures a different help-seeking tendency.

Table 5: Study 1 – Help-seeking scale correlations

Measure	Adaptive	Avoidant	Executive	Threat
Adaptive	-			
Avoidant	-.30*	-		
Executive	.16*	-.13	-	
Threat	-.19*	.46*	-.09	-

\*. Correlation is significant at the 0.05 level.

To collect additional validity evidence, an unrestricted Maximum likelihood factor analysis with Varimax rotation was conducted with the items from the three scales measuring

Table 6. Study 1 - Initial rotated factor loadings

Scale	Item content	Factors			
		Adapt.	Adapt.	Avoid.	Exe.
Adapt. 1	If I do not understand something, I usually want someone to explain it to me and not just give me the answer.	<b>0.606</b>	0.056	-0.216	-0.024
Adapt. 2	If there is something I do not understand, I prefer someone give me hints or clues rather than the answer.	0.168	<b>0.449</b>	-0.290	-0.126
Adapt. 3	When I do not understand something, I usually want someone to show me the steps involved in solving the problem.	<b>0.999</b>	-0.001	0.003	0.000
Adapt. 4	If I need help, I usually ask questions so the person will provide just enough information so I can figure it out myself.	0.239	<b>0.735</b>	-0.452	0.053
Adapt. 5	If I get stuck on something I usually ask someone for just enough help so that I can keep working through it.	0.116	<b>0.674</b>	-0.270	0.020
Avoid. 1	If I do not understand something, I prefer to guess rather than ask for assistance.	-0.206	0.236	<b>0.622</b>	0.375
Avoid. 2	Even if the work is too hard to do on my own, I do not ask for help.	-0.193	0.269	<b>0.744</b>	0.229
Avoid. 3	I prefer to do worse on something that I could not finish, rather than ask for help.	-0.220	0.156	<b>0.669</b>	<b>0.400</b>
Avoid. 4	If I need help on a problem I skip it.	0.012	0.008	<b>0.544</b>	0.261
Avoid. 5	When I do not understand something, I usually do not ask questions.	-0.155	0.098	<b>0.726</b>	0.288
Exe. 1	If I get stuck on something, I seek help so the problem can be solved accurately by an external source.	0.135	-0.168	-0.568	<b>0.616</b>
Exe. 2	When I do not understand something, I seek help so the problem can be solved quickly by an external source.	0.148	-0.170	-0.514	<b>0.577</b>
Exe. 3	If I get stuck on a problem, seeking help allows me to concentrate on other problems.	0.075	-0.032	-0.255	<b>0.499</b>
Exe. 4	If I need help when working on problems, I usually ask questions so that an external source can provide a solution.	0.270	-0.058	-0.304	<b>0.570</b>
Exe. 5	If there is something I do not understand, I prefer an external source give me the answer so that I can continue to make progress.	0.099	-0.125	-0.046	<b>0.518</b>

help-seeking tendencies. Factor loadings are presented in Table 6. Cases were deleted using a listwise deletion and an eigenvalue of 1 was used to interpret the factor structure. This analysis yielded a four factor solution that accounted for 57.52% of the sample variance. The Kaiser-Meyer-Olkin measure of sampling adequacy was .78, and Bartlett's test of sphericity was significant ( $\chi^2 (105) = 987.08, p < .001$ ). Additionally, the communalities were all at or above .3, which indicated that all items shared some common variance. Given these overall indicators, the factor analysis was acceptable for all 15 items.

Items measuring executive help-seeking all loaded on a single factor. The third item of the avoidant help-seeking scale cross loaded with the executive help-seeking scale, but had a stronger loading with the factor measuring avoidant help-seeking. However, adaptive help-seeking loaded on two separate factors.

Given previous support for the adaptive help-seeking scale and three theoretically distinct factors, a second exploratory factor analysis was conducted with the number of factors constrained to three. Again, an orthogonal, Varimax rotation with a .4 item to factor criteria to interpret item loadings was conducted. Factor loadings are presented in Table 7. The result was a model that accounted for 49.43% of the sample variance. The Kaiser-Meyer-Olkin measure of sampling adequacy was .78, and Bartlett's test of sphericity was significant ( $\chi^2 (105) = 987.08, p < .001$ ). Given these overall indicators, the factor analysis was acceptable for all 15 items.

Restricting the analysis to three factors generally supported the proposed factor structure, but demonstrated that some items in the adaptive help-seeking (Items 1 and 3) scale did not load on any factors. Items measuring avoidant help-seeking all loaded on single factors. The items on Pragmatic Executive Help-Seeking scale all loaded on a unique factor, which provides additional evidence to suggest that the new scales measure a different help-seeking tendency.

Table 7: Study 1 - Rotated factor loadings when restricted to three factors

Scale	Item content	Factors		
		Adaptive	Avoidant	Executive
Adaptive 1	If I do not understand something, I usually want someone to explain it to me and not just give me the answer.	0.266	-0.282	0.157
Adaptive 2	If there is something I do not understand, I prefer someone give me hints or clues rather than the answer.	<b>0.546</b>	-0.172	-0.052
Adaptive 3	When I do not understand something, I usually want someone to show me the steps involved in solving the problem.	0.225	-0.194	0.159
Adaptive 4	If I need help, I usually ask questions so the person will provide just enough information so I can figure it out myself.	<b>0.876</b>	-0.135	0.127
Adaptive 5	If I get stuck on something I usually ask someone for just enough help so that I can keep working through it.	<b>0.732</b>	-0.003	0.017
Avoidant 1	If I do not understand something, I prefer to guess rather than ask for assistance.	-0.038	<b>0.789</b>	-0.001
Avoidant 2	Even if the work is too hard to do on my own, I do not ask for help.	-0.043	<b>0.827</b>	-0.180
Avoidant 3	I prefer to do worse on something that I could not finish, rather than ask for help.	-0.127	<b>0.814</b>	0.018
Avoidant 4	If I need help on a problem I skip it.	-0.164	<b>0.550</b>	0.014
Avoidant 5	When I do not understand something, I usually do not ask questions.	-0.183	<b>0.771</b>	-0.083
Executive 1	If I get stuck on something, I seek help so the problem can be solved accurately by an external source.	0.066	-0.242	<b>0.817</b>
Executive 2	When I do not understand something, I seek help so the problem can be solved quickly by an external source.	0.050	-0.222	<b>0.774</b>
Executive 3	If I get stuck on a problem, seeking help allows me to concentrate on other problems.	0.074	0.006	<b>0.561</b>
Executive 4	If I need help when working on problems, I usually ask questions so that an external source can provide a solution.	0.115	-0.049	<b>0.679</b>
Executive 5	If there is something I do not understand, I prefer an external source give me the answer so that I can continue to make progress.	-0.072	0.145	<b>0.515</b>

## **Discussion**

The results from Study 1 that the newly created Pragmatic Executive Help-seeking Scale measures a distinct element of help-seeking and provides two types of validity evidence (AERA, APA, NCME, 2014). Evidence based on relations to other variables was provided through testing the relationship between the new executive help-seeking scale and other established scales that measure help-seeking tendencies. The scores on the Pragmatic Executive Help-seeking Scale were only significantly related to scores on the adaptive help-seeking scale and the correlation was weak (e.g. Myers, Well, & Lorch, 2010). This finding differs from previous research that found strong, positive correlations between executive and avoidant help-seeking (Karabenick, 2001, 2003; 2004). However, the results correspond with the theoretical conceptualization that both adaptive and avoidant help-seeking should share some inclination to initiate help-seeking interactions (e.g. Roll, et al, 2011).

The results of the exploratory factor analyses provide validity evidence based on internal structure (AERA, APA, NCME, 2014). In both the restricted and unrestricted analyses, the items measuring executive help-seeking loaded on different factors than items measuring both adaptive and avoidant help-seeking.

## **Limitations**

The study had several limitations. Consistent with procedures utilized in previous research studies (Newman & Goldin, 1990; Reeves & Sperling, 2015a; Ryan, Patrick, & Shim, 2005; Ryan & Pintrich, 1997), students were asked to think abstractly about help-seeking in their current class. Consequently, the results may be specifically related to the characteristics of the professor and how this particular class was organized. Researchers need to conduct similar

studies in classrooms with different professors, instructional methods, and content areas (such as entrepreneurship education) in order to further generalize the results.

A second limitation of the study is that it relies entirely on self-reported information. The use of conditional statements has been shown to control for the need to seek help and relates to actual help-seeking behavior (Karabenick & Knapp, 1988; 1991). However, the responses on the scales may not necessarily correspond exactly to behavior. Future research should utilize observations, teacher ratings, or find other behavioral evidence to provide additional validity evidence for the Pragmatic Executive Help-seeking Scale as well as for other existing self-report help-seeking measures

Third, because participants were able to complete the survey at home, they may not have spent as much time as they would have in the presence of the investigator. Future studies should compare how different administration procedures influences the results.

Finally, the sample consisted mostly of female education students. Previous research has indicated that females have a higher tendency to seek help than males (e.g. Ryan, Gheen, & Midgley, 1998). Additional studies should examine how gender impacts responses on the new Pragmatic Executive Help-seeking scale. Furthermore, the psychometric properties of the scale should be reexamined if used with a sample that consists of a higher percentage of males or students from other academic disciplines.

### **Future Directions**

Future research should attempt to provide additional validity evidence for both the new executive help-seeking scale and the other scales measuring help-seeking tendencies. Further, the Pragmatic Executive Help-seeking Scale should be administered to a more diverse population of



students and reviewed for any biases based on gender, ethnicity, or other individual difference variables. Additionally, in order to ensure that the scales are measuring general help-seeking tendencies that are consistent across contexts, the scale should be provided to students on multiple occasions and in multiple contexts. Results from such studies could also provide information about how stable help-seeking tendencies are across contexts.

Scores on the Pragmatic Executive Help-seeking Scale should also be correlated with other variables including achievement orientation and self-efficacy, which would provide additional evidence based on relations of executive help-seeking with other critical variables that relate to help-seeking tendencies (Ames & Lau, 1982; Butler, 1998; Kozantis, Desbiens, & Chouinard, 2007; Karabenick, 2004; Roussel, Elliot, & Feltman, 2011; Ryan, Gheen, & Midgley, 1998; Ryan, Pintrich, & Midgley, 2001; Zusho & Barnett, 2011).

Research should also compare scores on the Pragmatic Executive Help-seeking Scale to observed behaviors to ensure that the help-seeking tendency measured by the scale corresponds to actual behavior. The items were developed to correspond with the benefits and definitions of executive help-seeking, but currently there is no evidence to suggest that the scale corresponds to actual behavior.

## **CHAPTER 4:**

### **STUDY 2 INTERVIEWS WITH ENTREPRENEURIAL STUDENTS**

#### **Introduction**

In this chapter, a brief review of research regarding the common problems that occur in small business and entrepreneurial ventures is presented. Since research is limited regarding the types of problems that entrepreneurial students encounter when working on projects and ventures, interviews are conducted to determine and classify the most common types of problems that students face in this context. The interview results are used, in part, to develop a method to measure help-seeking that will be utilized in Chapter 5. The new method is needed because existing help-seeking research either examines general help-seeking intentions at the classroom level by utilizing Likert scales with conditional statements (Karabenick & Knapp, 1988; 1991), or examines actual help-seeking behavior on specific problems (e.g. Beal, Qu, & Lee, 2008; Puustinen & Rouet, 2009). Help-seeking behavior with different types of problems has not yet been examined.

#### **Types of Problems**

Problems have been categorized in many different ways. In academic contexts, perhaps the most common method of categorization, distinguishes between well-defined and ill-defined problems (e.g. Jonassen, 1997). Well-defined problems have a single correct answer as well as a mechanized, prescribed, or preferred solution path, which requires the application of a limited number of rules, principles, and known criterion within the domain of knowledge in the subject or field. In contrast, ill-defined problems do not have a single correct solution or solution path (Kitchener, 1983).

The distinction between ill and well defined problems is helpful; however, problems may not always neatly fit into a specific classification. Certain aspects of a single problem may be characterized as ill-defined and while others may be characteristic of well-defined. For example, creating a company name or brand would be considered an ill-defined problem, as there are many possible options and factors to consider. However, determining if the name is trademarked or not, and thereby available for use, is a fairly well-defined problem that would need to be solved within the larger ill-defined problem. Therefore, many researchers consider problems to be placed on a continuum as opposed to being rigidly classified as either well-defined or ill-defined (Jonassen, 1997).

In small business contexts, researchers studied and classified various problem domains that commonly occur. For instance, Wu & Young (2002) asked small business owners to list problems that they struggled with when they started their business. The researchers found that the most common problems involved obtaining external finance, managing internal finances, sales, marketing, management, production, human resources, organizational structure, accounting, taxes, and legal issues (Wu & Young, 2002). Interestingly, the problem domains also differed based upon age of the business. Therefore, the current stage of the business as well as other social and cultural factors likely influence the types of problems that entrepreneurs and small business owners encounter.

Similarly, Huang and Brown (1999) contacted individuals from 973 small businesses and asked about the common problems they encountered. Marketing and sales, human resource management, business management, operation management, product development, and obtaining financing were the most commonly occurring problems. The research also compared the type of problems that occurred with the number of the company's employees. Human resource and

operation management problems occurred more frequently in mid (5-19 employees) and large sized (20 or more employees) businesses than small businesses (Fewer than 5 employees). However, obtaining external financing was a more frequent problem in small and mid-sized organizations.

### **Purpose and Context of the Interviews**

Since research is limited regarding the types of problems that entrepreneurial students encounter when working on projects and ventures, interviews were conducted to determine and classify the most common types of problems that students encounter in entrepreneurship education. The interviews were conducted as part of a larger assessment plan of the Intercollege Minor in Entrepreneurship and Innovation (ENTI) at the Pennsylvania State University. To earn the minor, students were required to complete nine credits in three core courses and at least nine credits in cluster-based courses. The core courses provided a general foundation of entrepreneurial knowledge while the cluster courses examined entrepreneurship in specific sectors of business and industry.

In the Spring of 2015, students could choose from seven different clusters, housed in six different colleges. Students were able to enroll in any cluster regardless of their college or major. Faculty members in different colleges created the cluster course sequences. The clusters that were available at the time of the interviews included:

- Food and Bio-Innovation - College of Agricultural Sciences
- New Media - College of Communications
- New Ventures - Smeal College of Business
- Social Entrepreneurship - College of Engineering.
- Technology Based Entrepreneurship - College of Engineering
- Digital Entrepreneurship and Innovation – College of Information and Sciences Technology
- Hospitality Management Cluster – College of Health and Human Development,

## School of Hospitality Management

### **Interview Protocol**

The assessment team of the entrepreneurship minor created the initial interview questions. The protocol was reviewed by several instructors of courses offered in the minor to ensure that the questions would address a wide range of student experiences. Since the interviews were conducted in order to determine how to improve the minor and entrepreneurial activities on campus, several questions asked students to describe the problems, challenges, and frustrations that they experienced while working on entrepreneurial projects. The interviews were semi-structured to allow deeper discussion of student experiences. An outline of the interview questions is in the Appendix E. The institutional review board approved the design (STUDY00001810).

### **Interview Procedure**

Instructors and the faculty members who were in charge of several of the clusters within the minor assisted in recruiting potential participants who may not have formally enrolled in the minor due to class standing. Instructors each provided a short list of potential participants who had expressed interest in their cluster of entrepreneurship. From the list of twenty-two students that instructors identified, five freshmen and eight sophomores agreed to participate in the interviews.

Seventy-four juniors and seniors who indicated that they enrolled in the minor on surveys, which were distributed at the beginning of the semester in entrepreneurial courses, were also contacted and asked to participate. Twelve juniors and seven seniors agreed to participate.

An effort was made to balance the number of participants from each of the various clusters and levels of entrepreneurial experience in order to capture a broad range of experiences and suggestions.

Potential participants were contacted via email and if they agreed to participate in the interview, the students scheduled individual appointments with the author. Thirty-three percent of students asked agreed to participate. One interviewer conducted all interviews. Participants met individually with the interviewer in a private room between the eighth and twelfth weeks of the Spring 2015 semester. Participants were paid twenty dollars upon arrival to the interview and were reminded that the payment was not conditional on the content of their responses. The interviews varied in length from twenty to forty-five minutes, depending on how many different entrepreneurial experiences the students had to discuss. The interviews were audio recorded and professionally transcribed.

## **Participants**

Females represented 53.13% of the sample (17 students), and international students represented 9.38% of the sample (3 students) of the 32 total participants. The sample consisted of students with a wide range of entrepreneurial experiences. At least three students from each cluster were interviewed and half of the participants reported that they were currently developing an entrepreneurial venture outside of their classes. Table 8 provides an overview of the academic level and cluster enrollments of participants.

Table 8: Study 2 - Description of students who were interviewed

Class Standing	Cluster							
	Food and Bio-	New Media	New Venture	Social	Tech.	Digital	Hospitality Management	Unsure
Freshmen		1		1				3
Sophomore		1	2		1	2	1	1
Junior	3	1	1	3	1	1	2	
Senior		2	2	2	1			

## Analysis

NVivo was used to analyze and code the interview data. Initially, responses were coded in relation to the original questions that were asked, which were outlined in the interview protocol (Appendix E). Within the responses for each question, grounded theory was utilized which enabled themes to emerge (Charmaz, 2008). Open coding resulted in several categories that were then refined further with axial coding (Schram, 2006). Due to the complexity of some of the student experiences and scenarios, several of the problems were coded into multiple categories. After final categories were established, a second rater coded 20% of the problems that students' mentioned encountering during the interviews. Initial agreement was 89%. After discussing any discrepancies, agreement increased to 95% (e.g. Gwet, 2014).

## Results

Participants referenced 76 unique problems throughout their interviews. After coding, ten different types of problems that students confronted when working on entrepreneurial projects emerged from the data. The problem types are summarized in Table 9, which indicates how

many participants mentioned each type of problem and how many unique problems were referenced for each type of problem.

Table 9: Study 2 – Types of problems that were referenced by interview participants

Problems	Description	Number of Participants	Number of References
Cultural	A problem that occurs as a result of not understanding the norms of the community in which they were working.	1	1
Evaluating or integrating information	A problem that arises because there is too much information available which makes it difficult to make decisions.	7	7
Finances and resources	A problem that arises because of a lack of money or inventory.	11	13
Finding clients/networking	A problem that arises because of a lack of clients or having a small network of contacts.	3	3
Idea generation	The problem of knowing where to start or how to form an idea	7	7
Legal	Problems that arise because of patents, licensing agreements, nondisclosure agreements, copyright, intellectual property laws.	3	3
Personnel	Problems that arise when managing people and includes instances when there is a lack of commitment, effort, or quality exhibited in the work of teammates or co-workers.	11	15
Prior knowledge	Problems that arise because of a lack of information or knowledge of a particular topic.	4	4
Technology	Problems that arise due to problems with computers, printers, or other technological devices.	8	14
Time	Problems with managing time and prioritizing tasks.	6	6

### Cultural Problems

Cultural problems were defined as problems that occurred as a result of not understanding the norms of the community. Only one participant indicated that she encountered a problem that resulted from a cultural misunderstanding. A senior described the problem that



she encountered when working on building and selling greenhouses in Kenya as part of the Humanitarian Engineering and Social Entrepreneurship program and the social entrepreneurship cluster.

*Here's kind of a goofy one that we like to tell. The first greenhouses on the ground, people wouldn't eat the food that grew out of them because it was bigger and healthier, and people thought it was witchcraft. And so we go back; they go, "Oh, my gosh, this tomato is so big. I'm not eating this. What's wrong with it?" They thought it wasn't healthy or good for you. And obviously, we had not anticipated – we would never have thought that that was an issue. And so now we have to go and try to build in some educational components and some nutritional information and how to educate people, and that puts you back a year, an entire growing season to grow a new batch of food to show people. That was quite the setback."*

While other students traveled to Africa to work on similar projects, no other students discussed any cultural problems when working on entrepreneurial ventures. It is possible that some students were not aware of any cultural problems or miscommunications that arose in their groups (Johnson & Lollar, 2002). Most surprisingly, none of the international students brought up any cultural issues during the interviews, but since all of them were working on teams with American students, perhaps any cultural problems they encountered when developing ideas were addressed by their colleagues before such problems negatively impacted their projects.

When working on projects independently, there is some evidence to suggest that culture and ethnicity impact help-seeking tendencies. For example, Nadler (1998) found that rural students in Israel that adhered to more collectivist cultural norms were more likely to seek help than students who lived in urban areas and identified with more individualistic norms. Nelson-Le Gall (2006) also found that students' preferred to seek help from peers with the same cultural or ethnic background. However, research has not examined how individuals seek help when cultural misunderstandings or problems arise in multicultural environments (e.g. Zusho & Barnett, 2011).

## Evaluating or integrating information

The second type of problem occurred when there was too much information available to the participants, which made it difficult for them to make decisions. This type of problem occurred for two reasons. First, when working on their ideas, participants received contradictory opinions, information, advice, or feedback. A senior in the New Media cluster described this type of problem.

*I was stuck a few weeks ago with determining which direction I was going to go with it because I was doing a lot of customer one-on-one interviews, and everybody was telling – so everybody was giving me their different opinions of what they would like to see, but I didn't necessarily have objective things of what people would actually want. And then I was trying to please everybody, so I was adding all these different features ideas and going away from the core mission because what I'm focusing on is helping people disconnect from their technology in group settings.*

Second, this type of problem occurred when participants had to integrate a large quantity of information in order to discover a solution to a problem. A freshman described the difficulty that she experienced when trying to join an existing venture as part of the Humanitarian Engineering and Social Entrepreneurship program and the social entrepreneurship cluster.

*“Compiling things is a problem because I'd much rather work from what – there's so much done in previous jobs. There's so much work that they've already done across the past five years. And there's so much to absorb and so much to integrate into the work we're doing. So that's definitely been challenging just taking all the information from both [from] the design or developing community.”*

Evaluating and integrating information challenged seven different students and was tied as the fourth most referenced problem. When encountering these problems, students generally reported the need to step back and evaluate their goals in order to help them focus on the most pertinent information. This type of problem likely corresponds to the last step of the help-seeking process, which involves evaluating the help that was received (Karabenick, 2014; Nelson-Le

Gall, 1981). While research indicates that receiving help that is not useful reduces subsequent help-seeking behavior (e.g. Newman & Goldin, 1990), little research has examined how having an abundance of information impacts help-seeking behavior.

### **Resources and Finances**

The third type of problem that students encountered when working on entrepreneurial problems/ contexts occurred when students had difficulty finding, raising, or managing material resources (not time or people) and money. As students, the participants often felt that they had less money and fewer personal resources than people at other stages of their life, as described by a senior in the Hospitality Management Cluster.

*“I kind of go through phases were I think of something then I do a little research on my own and I am like yeah that is not feasible, as like a college student with no income and not that much time. I am kind of looking at feasible things to accomplish, not like starting a hotel in State College or something like that because you know I am not going to be able to do that.”*

Other students indicated that they struggled with figuring out how to manage their money and allocate resources in their ventures. The following quote, provided by a freshman in the New Media Cluster, illustrates how financial and resource management can overlap with prior knowledge of business and accounting principles.

*“We were having trouble with the costs, like figuring out how much we should be paid and then how much time we would spend and how much [the product] was worth to the buyer and then how much money we would have to invest in the company.”*

A few students had more specific examples of when they encountered problems with their products, inventory, and resources. For example, in the following quote, a senior in the Food and Bio Innovation Cluster describes his experience of trying to win a sales challenge for one of his entrepreneurially focused classes.

*“Our idea was we were going to sell tutus and neon socks because it was about two and a half weeks before THON. So we figured that would be a good target market – students going to THON. So we ordered the socks; socks come in; they’re great. We ordered the tutus, and the tutus were probably this big, could barely fit around my head. So obviously, we had a wardrobe malfunction, literally.”*

Problems with finances and resources were encountered by eleven students and were referenced thirteen times. Clearly, it was one of the biggest concerns of entrepreneurial students. Given the importance of finances and resources to the success of any entrepreneurial venture, these problems may be particularly detrimental (e.g. Grable & Joo, 1999). As a result, when students encounter problems with finding or managing resources, they may be more likely to seek help, when compared to some other types of problems.

### **Finding clients and networking**

The fourth type of problem that students discussed occurred due to a lack of enough personal contacts outside of their group, team, or business. While this type of problem did not affect very many participants (three students), these challenges involved only having a small network of contacts or a lack of clients as indicated in the following quote by a sophomore in the New Ventures Cluster.

*“So when I first started my company, I was just selling to people my parents knew, just through neighbors, through stuff like that. I really wasn’t going out and looking for a different business. I wasn’t going to restaurants; I wasn’t going to country clubs; I wasn’t going to schools. I was just kind of flat with it. So I realized that when I ran out of people to sell through, I just didn’t really know what to do. I was a little too timid to go out and talk to someone, like flat-footed, like cold calling.”*

This type of problem may not have bothered students may not have been bothered by this type of problem very frequently due to the variety of resources that are available to them at the university. During these interviews, the most frequently referred to resource were professors who

connected students to other individuals and resources that they needed (Reeves, Zappe, Kisenwether 2016). As a result, this type of problem may be more severe and more difficult to overcome in different environments.

### **Idea generation**

The fifth type of problem occurred when students had difficulty generating business ideas and proposals for class projects, which included instances of not knowing where to start when completing a task. This type of problem was encountered by seven students and referenced seven times. A sophomore in the Digital Entrepreneurship and Innovation Cluster provided an example.

*“For me, personally, the most frustrating is just knowing where to start and taking action and how to – I guess it depends on the type of person. Like I have ideas; it’s just a matter of getting started on them and figuring out where to start, and it all seems overwhelming at times. I don’t how much you can teach that.”*

These problems are ill-defined and have many possible solutions paths. Additionally, multiple criteria could be used to evaluate the pros and cons of each solution path. Given the large number of directions, it may be difficult to formulate specific questions or inquiries, which may prevent students from being able to identify appropriate sources or methods of seeking help (Newman, 2000; van der Meij, 1990). As a result, help-seeking behavior on this type of problem may be lower than on other types of problems.

Pivoting, or changing direction when developing an idea, is a valued skill in entrepreneurship (e.g. Arteaga & Hyland, 2013). Nascent entrepreneurs, however, often experience difficulty deviating from their original idea or process (Cardon, Wincent, Singh, & Drnovsek, 2009). A more experienced entrepreneur may be more likely to just get started on an

idea and pivot, or iterate different solutions, if the direction that they initially started on becomes untenable (Gartner, Mitchell, & Vesper, 1989). As a result, more experienced entrepreneurial students may not consider this type of problem to be very detrimental when compared to non-entrepreneurs or less advanced entrepreneurial students.

## Legal

The sixth type of problem involved overcoming legal and bureaucratic barriers. Licensing agreements, nondisclosure agreements, and copyright and intellectual property laws were specific topics that concerned participants. Legal problems were mentioned by three students and referenced three times. A junior in the New Ventures Cluster described her attempt to overcome legal and bureaucratic issues while trying to sell merchandise that had Penn State logos printed on it.

*“With the headbands, we ran into some major roadblocks. We went to legal services at Penn State to see if they could help us with some of the licensing issues, and they sent us to a totally different department that said they wouldn’t touch us with a ten-foot pole and that they also wouldn’t notarize our partnership agreement which was really frustrating. The only way that they might’ve done it was if we put a clause in it that said that Penn State’s not responsible if we do break the partnership agreement, which was too much of a struggle. And so the most that they did for us was refer us to other attorneys in town...and so my partner has made a list of every time we’ve hit a roadblock at Penn State, and I don’t have that list but there’s a couple.”*

Similar to financial and resource problems, legal issues can easily stall or stop an idea or venture and may be considered to be a severe problem, which may encourage students and entrepreneurs to seek help. Given the consequences of legal problems and the level of expertise required to overcome legal problems, entrepreneurs may be more likely have executive help-

seeking goals, and simply look for sources of help that can provide solutions, instead of attempting to receive hints or guidance that would enable them to proceed on their own.

## Personnel

The seventh type of problems occurred when participants had difficulty managing, motivating, or interacting with members of their own team, group, or business. Primarily participants commented on instances when their colleagues demonstrated a lack of commitment and effort or produced poor quality work. A junior in the New Media Cluster shared the following personnel problem that she encountered, which involved a team member with a lower level of commitment.

*“When I first started out in this, I knew I was really passionate about the idea, but the girls from the hackathon – I didn’t know if they were... So I didn’t know how to go about that because I wouldn’t have been able to get to this point without them, and I didn’t want to – I was doing things on my own here, but it’s not like – I didn’t want to exclude them. But then at the same time, what if I did all this work and then they jumped on the bandwagon... That’s why I didn’t do anything.”*

A sophomore in the New Ventures Cluster provided the following example about having a teammate who was producing inferior quality work.

*“I was basically in charge of finding where we’re going to manufacture, whether it’s buying the products and assembling – because it was a car care kit, so basically like Band-Aids, gloves, so anything you would need on the roads. So my job was to see what was to go in the kit, where were you going to buy the stuff to go in the kit, what was going to be printed on the kit, just everything like that. And so it was a very, very extensive group to be a part of... So one of my team members wasn’t performing the way he should be. He wasn’t answering his phone; he wasn’t getting his assigned work done. So I sat down with the president of the company and the mentors and said, “This is what’s happening. I need someone who could actually do the job well.”*

Personnel issues was the most common type of problem and was discussed by eleven students and referenced fifteen times. Besides being common, personnel problems seemed to be

particularly difficult for students to navigate through either because they had very little control over the outcome (i.e. cannot force anyone to do work) or because they did not want to offend or get their friends, classmates, or colleagues in trouble with teachers or other authority figures. In a start-up or business without a strict hierarchy, individuals may be more willing to get help and consult with colleagues about how to address these problems.

### **Prior knowledge**

The eighth type of problem occurred when students could not proceed because they did not know enough information about a particular topic. Prior knowledge is vitally important for learning and impacts an individual's ability to overcome just about any problem including all of the other types of problems discussed in this section. Due to the prevalence of problems that involved a lack of knowledge of finance, law, or technology, problems that were related to those topics were coded as only a problem in the particular field. A problem caused by a lack of prior knowledge of other topics was coded as a prior knowledge problem. Prior knowledge problems were encountered by four students and referenced four times.

A senior in the New Ventures Cluster provided this example:

*“I would say the technology part just because one of our projects was something you could pay with [inaudible]. I mean it’s a great idea, but we didn’t have enough information about it. So it was frustrating that we were trying to make it real, but we didn’t really know much about it.”*

Since entrepreneurship involves the combination and integration of many different topics and domains, entrepreneurs often encounter problems that fall outside of their individual area of expertise (Gelderen, Thurik, & Patel, 2011). As a result, it may be more common for entrepreneurs to struggle with problems that could be solved more easily by someone with more



experience or knowledge. Furthermore, entrepreneurs may not have the time or ability to learn all of the relevant content that relates to some of the problems that they encounter. Therefore, individuals who are working on entrepreneurial projects may be more willing to seek executive help when they encounter problems that arise because of a lack of prior knowledge.

## **Technology**

The ninth type of problems that participants encountered occurred when they had difficulty interacting with computers, printers, or other technological devices. Technological problems hampered eight students and were referenced fourteen times. Higher prior knowledge regarding either the design of the device or computer science might mitigate technological problems.

A junior in the HESE and Social Entrepreneurship cluster provided this example.

*“I had to do a podcast, and I’ve never worked with that kind of technology before. So I’d say probably – I recorded everything, and my biggest challenge was: how do I edit this? Where do I put sound effects? Where do I splice and just kind of that type of stuff so definitely working with technology in that kind of project.”*

A sophomore who was unsure what cluster he wanted to complete provided this example.

*So in my lab, I work on a laser microscopy. I use a laser a lot, and there’s all sorts of things that can go wrong with this because it’s very – almost like a Frankensteinian monster. It’s custom built; it’s these different components fit and bent and shaped into this way, a lot of things that my professor has machined himself to make it all work together. So it’s very much like you can know how everything works perfectly, but if something is wrong and you haven’t seen that error before, you have no idea what to do.*

While technological problems may be particularly prevalent with entrepreneurs trying to design products or create a technology based company, other business ventures benefit from creating apps or websites and it is likely they too encounter various technological challenges.

Regardless, help-seeking tendencies are likely impacted by the severity of the problem and the individual or team's level of expertise with technology.

## **Time**

The tenth and final type of problem that students discussed during the interviews was time management. Problems involved scheduling, prioritizing, and being able to meet deadlines. Six students commented on time management problems, which were referenced six times during the interviews. A sophomore who was unsure of what cluster to pursue provided the following example of a time management problem.

*“There needs to be something that just clicks or like pushes for you because what’s stopping me right now from pursuing what my team thought up and won about is that I’m just busy; I don’t have time. And I would have nowhere to start because it’s a huge thing to start up your own project, and I don’t even have time to breathe.”*

Many methods of preventing and overcoming time management problems exist. Advisors, mentors, and colleagues can provide advice and model effective coping strategies. Self-regulatory behavior such as planning, monitoring, and evaluating progress would also likely lessen the negative impact that time management problems may have. An individual's help-seeking behavior for time management problems is likely impacted by the severity of the problem and the consequences of mismanaging a task. For a class project, poor time management will usually result in a lower grade or performance, but for an entrepreneurial venture there could be serious financial consequences that may encourage them to seek help.

## Discussion

The interview analysis and results provided examples of real problems that students faced when they worked on entrepreneurial ventures. The types of problems that emerged from the interviews with students in entrepreneurship education courses somewhat overlapped with the types of problems that owners of small business encountered (Hwang & Brown, 1999; Wu & Young, 2002). Managing people (i.e. human resources), legal issues, and obtaining and managing finances were common in both contexts.

Marketing and sales were more common concerns in small businesses than for the interviewed students. Additionally, organizational structure, and production and operation management were also problems that occurred in small businesses, and may have broadly covered problems that were classified as time management or technology problems in the current study. Idea generation, evaluation and integration of information, and prior knowledge problems were unique to the entrepreneurship education context, which may reflect both the duality of working on a venture within academia and the notion that the students' ideas and ventures were not as developed as those of owners and workers in small businesses. A parallel study using the same questions and coding scheme for both the entrepreneurship education and small business contexts should be conducted in order to establish comparisons that are more accurate. Future studies should also compare differences between the types of problems that entrepreneurial students, entrepreneurs, and intreneurs face when working on projects and ventures.

Future studies could also address how different types of problems and other situational factors impact various stages of the help-seeking process. It may be possible that individuals have more difficulty recognizing certain types of problems, which could prevent them from seeking help. This has been demonstrated in the mental health field as individuals have varying

degrees of difficulty with both recognizing the need for help and making the decision to seek help for different conditions (Deane, Wilson, Ciarrochi, 2005).

### Problem Scenario Creation

Table 10: Study 2 – Examples of transformation of student quotes to general problem scenarios

Type of Problem	Quotation	General problem scenario
Technology Problem	<i>“So in my lab, I work on a laser microscopy. I use a laser a lot, and there’s all sorts of things that can go wrong with this because it’s very – almost like a Frankensteinian monster. It’s custom built; it’s these different components fit and bent and shaped into this way, a lot of things that my professor has machined himself to make it all work together. So it’s very much like you can know how everything works perfectly, but if something is wrong and you haven’t seen that error before, you have no idea what to do.”</i>	As you are working one day, the equipment you are working with starts malfunctioning and you are not sure what is causing the error or how to fix it.
Personnel Problem	<i>So one of my team members wasn’t performing the way he should be. He wasn’t answering his phone; he wasn’t getting his assigned work done. So I sat down with the president of the company and the mentors and said, “This is what’s happening. I need someone who could actually do the job well.</i>	One member of your team has not been producing quality work.
Resource Problem	<i>“Our idea was we were going to sell tutus and neon socks because it was about two and a half weeks before THON. So we figured that would be a good target market – students going to THON. So we ordered the socks; socks come in; they’re great. We ordered the tutus, and the tutus were probably this big, could barely fit around my head. So obviously, we had a wardrobe malfunction, literally.”</i>	You have ordered all the materials that you need to complete your project. You spent all of your available funds on these materials, but when they arrive, you realize that they do not function as expected.

The main purpose of the study was to create general problem solving scenarios that corresponded to actual problems that entrepreneurial students encountered. Three general problem scenarios for each of the seven most common categories of problems (Cultural, Evaluating or integrating information, Finances and resources, Idea generation, Personnel, Prior knowledge, Technology, and Time Management) were included on a final measure (Appendix F) in order to represent a wide spectrum of potential problems. Table 10 provides example quotations that correspond to general scenarios. The same participants who were interviewed reviewed the problem scenarios to ensure that they were unique and relevant to entrepreneurship education.

### **Limitations**

The study had several limitations. First, only three to five students from each cluster of entrepreneurship (i.e. Food and Bio Innovation, New Media, New Ventures, etc.) were interviewed. Since the number of students interviewed from each of these unique domains was relatively low, the results may not be fully representative of the students' experience in each cluster. An effort was made to find and recruit students from each of the available areas of entrepreneurship education so that the entire spectrum of clusters was represented. However, in doing so, some of the nuances and details that may have emerged if a larger number of students from a single cluster were interviewed were lost. For example, financial knowledge problems may have been more prevalent for students who concentrated on one form of entrepreneurship than another. Additional research should focus what types of problems occur more frequently within each cluster or sector of entrepreneurship.

Second, the participants who agreed to be interviewed may not be fully representative of all the students that are enrolled in the minor. It is possible that students who agreed to participate were more involved and invested in the program or entrepreneurship than students who did not agree to participate. Attempts were made to ensure that students from different levels of experience were included in the interview process by equaling the number of students who were and were not engaged in ventures outside of class. Unfortunately, the design was not balanced across class standing, within or across clusters, so it is not possible to make comparisons across class year. Future research should also focus on what types of problems occur more frequently at different levels of experience within entrepreneurship education programs.

Finally, the interview questions asked students to retroactively report on their experiences in the minor, which likely influenced responses. The challenges that students reported may have represented their most recent problems or the largest problems that they encountered when working on a project. The semi-structured interview protocol allowed the researcher to prompt for additional information about projects and experiences, but future research would benefit from observing either students or entrepreneurs while they are developing their venture. Studies such as these would possibly eliminate some bias and be more representative of all the problems that students faced. An observational protocol could also be used to examine both the problems that entrepreneurs encounter in the real world and the problems that students encounter in entrepreneurship education, which would provide additional information about the similarities and differences of the two contexts.

## **CHAPTER 5**

### **STUDY 3 – PROBLEM CHARACTERISTICS AND HELP-SEEKING**

As indicated in Chapter 3, help-seeking has primarily been measured at either the classroom level (Newman & Goldin, 1990; Ryan, Patrick, & Shim, 2005; Ryan & Pintrich, 1997) or with regard to specific problems (Newman, 1998; Roll, Alevan, McLaren, & Koedinger, 2011). Since most of these studies were conducted in mathematics and science classrooms and only involve one type of problem, not much is known about how different characteristics of problems influence help-seeking threat, behavior, or intentions. Since learners in entrepreneurship education environments encounter many different problems when working on projects (Gelderen, Thurik, & Patel, 2011), it may be especially important to explore how the characteristics of problems impact help-seeking in this context. In this chapter, the Pragmatic Executive Help-seeking Scale that was developed in Chapter 3 and the general problem scenarios that were created based on the interview results shared in Chapter 4 are used to examine how different characteristics of problems influence help-seeking.

#### **Characteristics of Problems**

Within business and organizational contexts, researchers identified characteristics of problems that may influence the help-seeking process in small businesses including task difficulty, severity, centrality, and novelty (Lee, 1997; 1999; 2002). Problem difficulty refers to how challenging a problem is to complete, and problem severity indicates how detrimental the problem is to the overall goals (Hinson, & Swanson, 1993). Workers are expected to seek help more often on severe problems that, if left unresolved, would jeopardize the business, project, or their employability. Workers are also expected to seek help more often on difficult problems in

order to avoid reciprocation costs. In essence, employees seek help-selectively in order to avoid having to provide assistance to coworkers on their easy problems (e.g. Cleavenger, Gardner, & Mhatre, 2007).

Centrality refers to whether or not a problem relates to the expertise required in the employee's job description (Lee, 2002; Nadler, 1987). For instance, writing computer code would be an essential skill required for a computer programmer, but not for an electrician. Employees are more likely to seek help on tasks and problems not considered central or essential to their job because there is not an expectation that they know how to solve the problem or complete the task. In an entrepreneurial project, either in a classroom or in a start-up, job descriptions and responsibilities are likely to be more flexible and fluid (Patel & Thatcher, 2014). Therefore, it may be difficult to determine the centrality of a task. Furthermore, an individual may volunteer or take responsibility for a particular role or task even without having the level of knowledge or experience that expected of a person hired specifically to complete that task in a larger business. As a result, the expectation of being able to complete the task should not be as high in these environments, so help-seeking behavior would also differ.

Task novelty refers to whether the problem is new or common. Interestingly, workers in a larger company or organization are more likely to seek help for common problems than novel problems (Lee, 2002). Workers may assume that someone else already knows how to solve the problem if it is relatively common. In addition, employees may not be as afraid to alert others to a problem if it is relatively common since it may be an expected occurrence. Further, workers are less likely to fear being viewed as the cause of the problem if it is common rather than new. New problems, in contrast, are associated with the risk of being accused of either causing or not



preventing the problem, but also potentially the reward of finding a crippling problem and receiving recognition, a raise, or promotion (Lee, 2002)

In an entrepreneurial venture, it is unlikely that a student or entrepreneur would be accused of causing a problem simply because they had not encountered it before. Especially in an educational environment, it is expected that students will encounter novel problems that they have never faced before (e.g. Bae, Qian, Miao, & Fiet, 2014; Yoder, Kleine, Carpenter, Fry, 2013). Part of the objective of education in general is to expand students' knowledge by providing, and then guiding them through, problems that are new and challenging to them (e.g. Goodwin, 2011). Given the multidisciplinary nature of entrepreneurship, students are likely be exposed to problems that fall outside of their major field of study. Furthermore, as entrepreneurs begin to develop their own ideas and ventures, they may be attempting to address problems or needs that no one in society-at-large has adequately solved. As a result, problem novelty may have the opposite impact on help-seeking behavior in entrepreneurial environments when compared to help-seeking in larger business organizations.

Many advance entrepreneurial courses often involve more interactive and experiential course activities where students work to develop their own ideas or ventures. These courses and activities typically require students to identify a need or solve ill-defined problems with many viable solutions in an attempt to simulate the real world activities of entrepreneurs. Unfortunately, research has not examined how the possible number of solution paths impacts help-seeking behavior or intention.

It is clear that small business owners and entrepreneurs encounter a variety of problems and need to be able to understand and apply information from a variety of different fields and domains in order to develop their ideas and ventures (Arvanites, Glasgow, Klinger, & Stumpf,

2006; Hixson, & Lesko, 2013). Whether these types of problems are similar in other contexts, such as working on projects in entrepreneurship education, still needs to be determined.

### **Purpose and Research Questions**

As indicated in Chapter 1, the third study contributes and expands the existing literature in two different areas. First, the current study expands the academic help-seeking literature into entrepreneurship education. A majority of existing academic help-seeking research was conducted in the context of mathematics and science classes (Bartholomé, Stahl, Pieschl, & Bromme, 2006; Karabenick 2003; Makitalo-Siegl & Fischer, 2011; Puustinen, Volckaert-Legrier, Coquin, & Bernicot, 2009). Little research has been devoted to help-seeking in entrepreneurship education (e.g. Au, Chiang, Birtch, & Kwan, 2014). Recently, however, scholars have recognized a potential link between self-regulatory learning strategies, such as help-seeking, and an entrepreneurial method. (Duening & Stock, 2013; Nambisan & Baron, 2013).

There are likely several differences between help-seeking in entrepreneurial contexts and academic contexts (See Chapter 2). For example, the costs and benefits of seeking help in entrepreneurial projects likely differ when money augments or replaces grades as the outcome. Additionally, executive help-seeking is expected to be more prevalent in entrepreneurial focused students due to the slightly different norms and expectations that are common in these courses and programs. Entrepreneurs frequently work on multidisciplinary projects and may not be expected and may not intend to master all of the different tasks, so seeking executive help may be more beneficial than adaptive help.

Executive and adaptive help seekers may differ in their perceptions of problems to such an extent that the type of help that individuals tend to seek may actually be a function of how they perceive problems. For instance, executive help seekers may perceive problems to be more severe, difficult, or have less confidence in their ability to solve them than adaptive help seekers. Previous research on help-seeking has either studied general, trait level tendencies or examined help-seeking in relation to specific problems (See Chapter 3). Since the characteristics and content of the problems was controlled for in these studies, not much is known about how different types or characteristics of problems influence help-seeking.

Similarly, despite a considerable amount of literature describing an entrepreneurial mindset, little research has examined differences between how entrepreneurial students and non-entrepreneurial students perceive or approach problems (first and seventh step in the help-seeking process). Since entrepreneurship education encourages students to work on multidisciplinary projects (Bae, Qian, Miao, & Fiet, 2014; Yoder, Kleine, Carpenter, Fry, 2013)), it is expected that they have encountered a larger variety of problems in their courses. Additionally, given the emphasis on pivoting and iterating ideas when problems arise, entrepreneurial students may be able to see more solutions and be more confident in their ability to solve problems than non-entrepreneurial students.

By exploring these hypotheses, this study contributes to the literature and provides insight into how the perception of problems' characteristics impact help-seeking for entrepreneurship education students by utilizing the general problem scenarios developed in Chapter 4.

The third study is designed to address following three questions.

- 1) How do entrepreneurial students and non-entrepreneurial students who are categorized as possessing either adaptive, avoidant, or executive help-seeking tendencies perceive problems differently?
- 2) How does help-seeking intention differ in entrepreneurial students and non-entrepreneurial students?
- 3) What problem characteristics predict an individual's intention to seek help?

## **Procedure**

The study design was approved by the institutional review board (STUDY00003503). Participants were contacted via email. To encourage participation, students who completed the survey were entered into a lottery to win one of ten \$20 gift cards. The surveys were distributed just after the halfway point in the semester and remained active for three weeks.

Participants gave implied consent to participate in the study by logging into Qualtrics, a survey presentation website. Participants could log into the website at any time, on any computer with internet access. The participants could take as much time as they needed to complete the survey. However, the survey needed to be completed in one sitting. The median survey completion time was twenty-two minutes. Students provided email addresses and names in order to enter the lottery for the gift card and to ensure that students did not attempt to complete the survey more than one time.

## **Participants**

Juniors in the College of Engineering were invited to complete the survey instrument. Unfortunately, only 88 (5.2% participation rate) students completed the survey. Among the participants from engineering, only seven were enrolled or intended to complete an entrepreneurship minor. As a result, students enrolled in the ENTI minor were also contacted via

email and invited to complete the survey. An additional 23 students (9.2% participation rate) from this population completed the survey. Demographic information is presented in Table 11.

Table 11: Study 3 – Participant demographic information

		Entrepreneurial Students (n = 30)	Non Entrepreneurial Student (n = 81)
Entrepreneurial Experience	Developed their own business or venture	16	0
	Did not develop their own business or venture	14	81
Entrepreneurial Coursework	0 courses completed	2	77
	1 course completed	2	3
	2 courses completed	2	0
	3 courses completed	11	0
	4 courses completed	4	1
	5 courses completed	0	0
	6 courses completed	4	0
	7 courses completed	3	0
Gender	Male	16	57
	Female	14	24
Ethnicity	White	24	64
	Asian	2	8
	Black	0	1
	Hispanic	0	4
	Multiple	0	3
	Undisclosed	4	1
International Student	Yes	3	4
	No	27	77

Participants (n = 30) were classified as entrepreneurial students if they were enrolled in an entrepreneurship minor or major. All students who were classified as entrepreneurial had either developed their own business (n = 16) or completed an entrepreneurial course. Of the students classified as entrepreneurial, two students had not completed an entrepreneurial course, two students had completed one entrepreneurial course, two students had completed two

entrepreneurial courses, eleven students completed three entrepreneurial courses, four students completed four entrepreneurial courses, four students completed six entrepreneurial courses, three students completed seven entrepreneurial courses, and two students completed eight entrepreneurial courses.

Participants ( $n = 81$ ) were classified as non-entrepreneurial if they did not intend to complete an entrepreneurial minor or major. Of the students classified as non-entrepreneurial, seventy-seven students indicated that they had not completed a course related to entrepreneurship; three indicated that they had completed one course related to entrepreneurship; and one indicated that he or she had completed four courses related to entrepreneurship.

Females represented 34.23% ( $n = 38$ ) of the entire sample. Nearly half of the entrepreneurial students were female ( $n=14$ ). Ethnic or cultural minorities represented 16.21% ( $n = 18$ ; Asian  $n = 10$ ; Black  $n = 1$ ; Hispanic  $n = 4$ ; Multiple  $n = 3$ ) of the total sample, and two of the entrepreneurial students identified as minorities (Asian  $n = 2$ ). Five students did not disclose their ethnicity. International students represented 6.31% ( $n = 7$ ) of the total sample, including three entrepreneurial students

## **Measures**

First, participants completed a demographic questionnaire. If they indicated that they were enrolled in an entrepreneurship minor or major, the instructions for the measures prompted them to consider their behavior within a required entrepreneurship course. If they indicated that they were not enrolled in an entrepreneurship minor or major, the instructions for the measures prompted them to consider their behavior in a required course. All participants then completed the same four scales that were utilized in Chapter 3 to measure help-seeking executive

help-seeking tendencies (created in Chapter 3; Appendix A), adaptive help-seeking tendencies (Ryan & Pintrich, 1997; Appendix B), avoidant help-seeking tendencies (Karabenick, 2001; Appendix C), and help-seeking threat (Karabenick & Knapp, 1991; Appendix D). Finally, participants were presented the twenty-one general problem scenarios that were developed in Chapter 4 (Appendix F). To provide a common context to all of the generalized problem scenarios, the following sentences preceded each of the scenarios:

**You have been working on a final project in a required course. You are in a group with three other members. There are ten days until the project is due.**

The scenarios were randomly administered to mitigate fatigue and order effects. For each scenario, participants rated (on one hundred point scales) the problems on several characteristics that had been linked to help-seeking behavior or intention in previous studies including: the severity of the problem (e.g. Cleavenger, Gardner, & Mhatre, 2007); the difficulty of the problem (e.g. Hinson, & Swanson, 1993); their confidence in their ability to overcome the problem (e.g. Newman & Goldin, 1990; Ryan & Shin, 2011); how frequently they had encountered the problem (novelty) (e.g. Lee, 2002); and how likely they would be to seek help for the problem (Reeves & Sperling 2015b).

A question was also included to measure whether ill-defined or well defined influenced help-seeking intention. Since problems may not always neatly fit into a specific classification, participants were asked to rate each problem based on the number of possible solution paths (0 = only one through 100 = very many) Less than 5% of data was missing, so expectation maximization in SPSS was used to input missing values (Enders, 2004).

## Results

Descriptive statistics for all measures are presented in Table 12. In general, participants had higher means on the adaptive ( $M = 19.9$ ,  $SD = 2.96$ ) and executive help-seeking-scales ( $M = 17.65$ ,  $SD = 3.48$ ) when compared to the avoidant help-seeking scale ( $M = 11.34$ ,  $SD = 4.01$ ). Additionally, participants highly rated their confidence in their ability to overcome the problems ( $M = 1454.49$ ,  $SD = 245.81$ ), while ratings on the frequency of encountering the problems was the lowest ( $M = 925.84$ ,  $SD = 301.06$ ). Both high confidence and novel problems were linked to increased help-seeking intention in previous research (e.g. Lee, 2002; Newman & Goldin, 1990; Ryan & Shin, 2011).

Table 12: Study 3 – Descriptive statistics for all measures

	N	Mean	SD	Min.	Max.	A
Executive Help-seeking	111	17.65	3.48	9	25	.78
Avoidant Help-seeking	111	11.34	4.01	5	21	.85
Adaptive Help-seeking	111	19.90	2.96	12	25	.71
Help-seeking Threat	111	13.21	5.301	6	28	.90
Severity	111	1166.44	260.32	549	2012	.86
Difficulty	111	982.47	261.21	322	1963	.87
Confidence	111	1454.49	245.81	863	1997	.88
Solutions	111	1042.23	331.54	440	1984	.92
Novelty	111	925.84	301.06	284	1955	.88
Help-seeking intention	111	1403.80	335.045	460	2059	.91

Table 13: Study 3 -Item level descriptives for the new executive help-seeking scale

Item	Mean	Standard Deviation
1 If I get stuck on something, I seek help so the problem can be solved accurately by an external source.	3.77	.88
2 When I do not understand something, I seek help so the problem can be solved quickly by an external source.	3.63	.96
3 If I get stuck on a problem, seeking help allows me to concentrate on other problems.	3.52	.96
4 If I need help when working on problems, I usually ask questions so that an external source can provide a solution.	3.52	.87
5 If there is something I do not understand, I prefer an external source give me the answer so that I can continue to make progress.	3.20	1.09



Analyses were conducted to examine the psychometric properties of the Pragmatic Executive Help-seeking Scale with the new sample. The new sample consisted of a male dominated group of juniors and seniors in contrast to female dominated group of freshman and sophomores that were included in the Study 1 sample. Table 13 contains item level means and standard deviations for the new scale. Just like the previous study, the mean rating for each item was between 3 (neither agree nor disagree) and 4 (agree). Again, similar to Study 1, the fifth item on the scale had the lowest mean (3.20) and highest standard deviation (1.09), but removing any item from the scale would have reduced the reliability coefficient of the scale.

Table 14 contains the correlations between all four administered scales. Scores on the Pragmatic Executive Help-seeking Scale were significantly correlated with scores on the adaptive help-seeking scale  $r(111) = -.21, p = .02$ . This correlation was in the opposite direction than found in Study 1. The negative correlation between the executive help-seeking scale and the avoidant help-seeking scale  $r(111) = -.24, p = .01$  was significant in this sample. The correlation coefficients between executive help-seeking and the other two help-seeking tendencies were weak, which again provides some evidence to suggest that the Pragmatic Executive Help-seeking Scale measures a different help-seeking tendency.

Table 14: Study 3 – Help-seeking scale correlations

Measure	Adaptive	Avoidant	Executive	Threat
Adaptive	-			
Avoidant	-.21*	-		
Executive	-.12	-.24*	-	
Threat	-.17	.51*	.04	-

\*. Correlation is significant at the 0.05 level.

To collect additional validity evidence, an unrestricted Maximum likelihood factor analysis with Varimax rotation was conducted with the items from the three scales measuring

Table 15: Study 3 - Initial rotated factor loadings

Scale	Factors			
	Adapt.	Adapt.	Avoid.	Exe.
Adapt. 1	.250	<b>.504</b>	-.374	.156
Adapt. 2	<b>.630</b>	<b>.453</b>	-.182	.026
Adapt. 3	-.097	.390	-.220	.184
Adapt. 4	<b>.697</b>	.104	-.174	.128
Adapt. 5	<b>.769</b>	-.238	-.353	.250
Avoid. 1	.098	.042	<b>.736</b>	.166
Avoid. 2	.132	.019	<b>.804</b>	.178
Avoid. 3	.200	.005	<b>.864</b>	.168
Avoid. 4	-.055	.179	<b>.467</b>	-.071
Avoid. 5	-.030	.056	<b>.751</b>	.246
Exe. 1	-.372	.106	-.433	<b>.454</b>
Exe. 2	-.388	.020	-.261	<b>.521</b>
Exe. 3	-.235	-.103	-.194	<b>.483</b>
Exe. 4	-.450	.062	-.407	<b>.433</b>
Exe. 5	-.446	-.134	.013	<b>.464</b>

help-seeking tendencies. Factor loadings are presented in Table 15. Cases were deleted using a listwise deletion and an eigenvalue of 1 was used to interpret the factor structure. This analysis yielded a four factor solution that accounted for 53.89% of the sample variance. The Kaiser-Meyer-Olkin measure of sampling adequacy was .79, and Bartlett's test of sphericity was significant ( $\chi^2(105) = 648.04, p < .001$ ). Given these overall indicators, the factor analysis was acceptable for all 15 items.

Items measuring executive help-seeking all loaded on a single factor. All items measuring the avoidant help-seeking scale cross loaded on a single unique factor as well. However, items measuring adaptive help-seeking loaded on two separate factors. The second item cross-loaded onto two factors and the third item did not load on any of the four factors.

Given previous support for the adaptive help-seeking scale and three theoretically distinct factors, a second exploratory factor analysis was conducted with the number of factors constrained to three. Again, an orthogonal, Varimax rotation with a .4 item to factor criteria to

interpret item loadings was conducted. Factor loadings are presented in Table 16. The result was a model that accounted for 48.48% of the sample variance. The Kaiser-Meyer-Olkin measure of sampling adequacy was .79, and Bartlett's test of sphericity was significant ( $\chi^2(105) = 648.04, p < .001$ ). Given these overall indicators, the factor analysis was acceptable for all 15 items.

Table 16: Study 3 - Rotated factor loadings when restricted to three factors

Scale	Factors		
	Adaptive	Avoidant	Executive
Adaptive 1	<b>.455</b>	-.219	.163
Adaptive 2	<b>.688</b>	-.041	-.151
Adaptive 3	.138	-.122	.289
Adaptive 4	<b>.786</b>	.006	-.125
Adaptive 5	<b>.684</b>	-.138	-.068
Avoidant 1	-.070	<b>.750</b>	-.117
Avoidant 2	-.050	<b>.822</b>	-.139
Avoidant 3	-.017	<b>.881</b>	-.195
Avoidant 4	-.149	<b>.401</b>	-.147
Avoidant 5	-.171	<b>.773</b>	.001
Executive 1	-.020	-.267	<b>.693</b>
Executive 2	-.071	-.089	<b>.701</b>
Executive 3	-.011	-.033	<b>.548</b>
Executive 4	-.123	-.267	<b>.687</b>
Executive 5	-.293	.112	<b>.558</b>

Restricting the analysis to three factors generally supported the proposed factor structure, but demonstrated that item three on the adaptive help-seeking scale did not load on any factors. Items measuring avoidant help-seeking all loaded on single factors. Items on the scale measuring executive help-seeking loaded on a unique factor, which provides additional evidence to suggest that the Pragmatic Executive Help-seeking Scale measures a different help-seeking tendency.

**Research Question 1: How do entrepreneurial students and non-entrepreneurial students who are categorized as possessing either adaptive, avoidant, or executive help-seeking tendencies perceive problems differently?**

A two-step cluster analysis was first conducted using log-likelihood distance to group students based on the self-reported scores on the adaptive help-seeking, avoidant help-seeking, executive help-seeking, and help-seeking threat scales. Karabenick (2003) conducted a similar analysis to determine the motivational orientations of students with different help-seeking tendencies. Three clusters emerged to distinguish different types of help seekers. Descriptive statistics for each cluster and provided in Table 17.

Table 17: Study 3 - Descriptive statistics for all measures by help-seeking cluster

	<b>Adaptive cluster (N=33)</b>		<b>Executive cluster (N=38)</b>		<b>Ambivalent cluster (N=40)</b>	
	Mean	SD	Mean	SD	Mean	SD
Executive Help-seeking	17.21	3.58	19.76	2.24	16.00	3.40
Avoidant Help-seeking	8.21	2.41	9.82	2.17	15.38	2.99
Adaptive Help-seeking	22.09	1.81	18.74	2.90	19.20	2.86
Help-seeking Threat	8.39	2.38	13.00	4.08	17.38	4.64
Severity	1112.82	254.18	1145.47	295.89	1230.60	219.03
Difficulty	901.76	238.24	948.18	304.48	1081.63	202.93
Confidence	1511.64	262.05	1493.34	224.93	1370.43	233.66
Solutions	1157.61	356.82	1017.11	333.13	970.90	288.40
Novelty	898.15	288.64	925.03	316.67	949.45	301.53
Help-seeking intention	1528.88	304.86	1451.29	367.09	1255.50	273.00

The first cluster, labeled as the adaptive cluster, had the highest mean on the adaptive help-seeking scale ( $M = 22.09$ ,  $SD = 1.81$ ) and the lowest mean on the avoidant help-seeking scale ( $M = 8.21$ ,  $SD = 2.41$ ). The second cluster, labeled the executive cluster, had the highest mean on the executive help-seeking scale ( $M = 19.76$ ,  $SD = 2.24$ ). The third cluster, labeled the ambivalent cluster, did have the highest mean, across all three clusters, on the avoidant help-seeking scale ( $M = 15.38$ ,  $SD = 2.99$ ). However, participants in this cluster were not clearly avoidant help seekers as participants in this cluster also had higher means on both the executive

help-seeking ( $M = 16.00$ ,  $SD = 3.40$ ) and avoidant help-seeking ( $M = 19.20$ ,  $SD = 2.86$ ) scales when compared to the avoidant help-seeking scale.

A significant difference in help-seeking intention was found among the three clusters  $f(2,108) = 7.36$ ,  $p = .001$ . The participants in the adaptive cluster had a significantly higher mean (Mean difference = 273.38) on the intention to seek help scale when compared to participants in the ambivalent cluster,  $p=.001$ . Additionally, the participants in the executive cluster had a significantly higher mean on the intention to seek help scale (Mean difference = 198.79) when compared to participants in the ambivalent cluster,  $p=.02$ . The results indicate that executive help seekers and adaptive help seekers report a higher intention to seek help, which is consistent with previous research on adaptive help-seeking (Newman, 2000; Reeves & Sperling, 2015a) and the theoretical definition of executive help-seeking (e.g. Nelson-Le Gall, 1981; Karabenick & Knapp, 1991; Karabenick, 2014). Unlike previous studies (Karabenick, 2003, 2004) the cluster analysis procedure did not combine students with high scores on avoidant and executive help-seeking scales into the same cluster, which provides additional evidence that the Pragmatic Executive Help-seeking Scale may be better able to differentiate between the two tendencies than previous scales.

Since executive help-seeking is often discouraged in traditional academic environments (e. g., Kozantis, Desbiens, & Chouinard, 2007; White & Bembenutty), it was expected that non-entrepreneurial students would be less likely to be considered executive help seekers. However, the results did not confirm that claim. The frequency of participants that were clustered into different help-seeking tendency groups did not differ based on participating in an entrepreneurial education program,  $\chi^2(2, N = 111) = 0.29$   $p = .23$  (Table 18). The small number of

entrepreneurial students who were included in each of the help-seeking clusters contributed to the non-significant result.

Table 18: Study 3 – Number of entrepreneurial and non-entrepreneurial students by help-seeking cluster

Frequency	<b>Adaptive Cluster (N=33)</b>	<b>Executive Cluster (N=38)</b>	<b>Ambivalent Cluster (N=40)</b>	Total
Percent				
Row Percent				
Column Percent				
Non Entrepreneurial	22	26	33	
	9.8	23.4	29.7	81
	27.2	32.1	40.7	73.0
	66.7	68.4	82.5	
Entrepreneurial		12	7	
	11	10.5	6.3	30
	9.9	40.0	23.3	27.0
	36.7	31.6	17.5	
	33.3			
Total	33	38	40	111
	29.7	34.2	36.0	

A mixed-design MANOVA compared perceptions of problem characteristics for entrepreneurial and non-entrepreneurial students in each cluster. Descriptive statistics for non-entrepreneurial students in each cluster are presented in Table 19. Descriptive statistics for entrepreneurial students in each cluster are presented in Table 20. Summed ratings of problem severity, difficulty, confidence, number of solutions, and novelty were the within subject variables and entrepreneurial enrollment and help-seeking cluster were the between subject variables. Since the chi-square test did not find any differences between help-seeking clusters based on entrepreneurial enrollment, the interaction between help-seeking clusters and entrepreneurial enrollment was not tested.

Table 19: Study 3 - Descriptive statistics for non-entrepreneurial students on all measures by cluster analysis results

Measures	Non Entrepreneurial Students					
	Adaptive cluster (N=22)		Executive cluster (N=26)		Ambivalent cluster (N=33)	
	Mean	SD	Mean	SD	Mean	SD
Executive	17.45	3.67	19.77	2.37	15.67	3.51
Help-seeking						
Avoidant	8.45	2.26	9.88	2.45	15.36	2.89
Help-seeking						
Adaptive Help-seeking	22.32	1.84	19.00	2.65	19.21	2.89
Help-seeking						
Threat						
Severity	1102.32	235.31	1132.73	263.19	1233.52	224.59
Difficulty	914.59	205.88	943.00	256.49	1076.48	179.84
Confidence	1527.41	249.77	1452.77	227.69	1381.24	237.28
Solutions	1122.55	362.48	965.35	295.35	957.18	285.64
Novelty	861.91	276.82	857.15	284.05	933.39	296.96
Help-seeking intention	1515.73	331.47	1382.00	367.58	1245.52	247.67

Box's Test of Equality of Covariance Matrices  $F(75,3879.51) = 1.35, p = .03$  was not significant, which indicated the variance-covariance matrices were unequal, so Pillai's Trace was used as a more robust test (Tabachnick & Fidell, 2001). Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated,  $\chi^2(9) = 108.64, p < .001$ , so the Greenhouse-Geisser statistic was needed to evaluate tests of within-subjects effects. Levene's Test of Equality of Error Variances indicated that the assumption of homogeneity of variance had not been violated for problem's severity  $F(5, 105) = .61, p = .69$ ., problem's difficulty  $F(5, 105) = 1.51, p = .19$ , confidence in ability to complete problems  $F(5, 105) = .40, p = .85$ , perceived number of solutions to problems  $F(5, 105) = .28, p = .92$ , and frequency of encountering similar problems  $F(5, 105) = .04, p = .99$ .

Table 20: Study 3 - Descriptive statistics for entrepreneurial students on all measures by help-seeking cluster

Measures	Entrepreneurial Students					
	Adaptive cluster (N=11)		Executive cluster (N=12)		Ambivalent cluster (N=7)	
	Mean	SD	Mean	SD	Mean	SD
Executive Help-seeking	16.73	3.50	19.75	2.01	17.57	2.44
Avoidant Help-seeking	7.73	2.72	9.67	1.44	15.43	3.69
Adaptive Help-seeking	21.64	1.75	18.17	3.43	19.14	2.91
Help-seeking Threat Severity	9.00	2.76	13.08	3.32	19.71	4.23
Difficulty	1133.82	299.55	1173.08	368.58	1216.86	206.27
Confidence	876.09	302.53	959.42	402.64	1105.86	307.17
Solutions	1480.09	295.12	1581.25	200.07	1319.43	225.67
Novelty	1227.73	351.25	1129.25	393.66	1035.57	315.58
Help-seeking intention	970.64	311.46	1072.08	345.62	1025.14	335.49
	1555.18	256.02	1601.42	332.02	1302.57	392.64

A significant interaction between problem characteristics and their clustered help-seeking tendencies Pillai's Trace  $F(8, 210) = 2.39, p = .02, \eta_p^2 = .08$  was also found. Due to the number of tests required, post hoc analyses required the familywise error rate be corrected. With the Bonferroni correction the critical  $p$ -value becomes .01, and as a result all of the post hoc tests are not statistically significant. The adaptive cluster had a lower mean when compared to ambivalent cluster (Mean difference = -179.87,  $p = .01$ ). Additionally, a difference occurred in confidence in the ability to overcome problems between the three clusters  $f(2,108) = 3.90, p = .02, \eta_p^2 = .02$ . Adaptive cluster had a higher mean when compared to ambivalent cluster, (Mean difference=141.41,  $p=.04$ ). Finally, a small difference occurred in the number of perceived solutions between the three clusters  $f(2,108) = 3.15, p = .047, \eta_p^2 = .05$ . Adaptive cluster had a higher mean when compared to ambivalent cluster, (Mean difference = 186.71,  $p = .04$ ). Since



the post hoc tests were not statistically significant and effect sizes were small, the results suggest that there are very small if any differences between how different help seekers perceive problems.

It was expected that entrepreneurial students might perceive and approach problems differently than non-entrepreneurial students. However, results from the MANOVA did not demonstrate significant interaction between problem characteristics and whether a student was enrolled in an entrepreneurial program Pillai's Trace  $F(4, 102) = 1.37, p = .25, \eta_p^2 = .05$ . The result suggests that the perception of problems characteristics does not differ based on enrollment in an entrepreneurial program.

**Research Question 2: How does help-seeking intention differ in entrepreneurial students and non-entrepreneurial students?**

To further examine if help-seeking intention on specific problems differed, an independent t-test was conducted. Levene's Test of Equality of Error Variances indicated that the assumption of homogeneity of variance had not been violated for  $F(1, 109) = .003, p = .96$ . A significant difference was found between students' who were enrolled in an entrepreneurial program and students who were not on their intention (Table 21) to seek help on the problems  $t(1,109) = 2.16 p = .03$  (Cohen's  $d = .46$ ), which suggests that entrepreneurial students are more likely to seek help on these problems.

Table 21: Study 3 – Descriptives of help-seeking intention across all problem scenarios for entrepreneurial and non entrepreneurial students

	Mean	SD	N
Non Entrepreneurial	1362.72	328.37	81
Entrepreneurial	1514.73	333.03	30
Total	1403.80	335.05	111

**Research Question 3: What problem characteristics predict an individual's intention to seek help?**

To address the third research question, correlations between the variables were calculated (Table 22). Intention to seek help was significantly correlated with perception of the problems' difficulty  $r(109) = -.21, p = .02$ , students' self-reported confidence in their ability to overcome the problem  $r(109) = .52, p < .001$ , and the perception of the number of solutions for the problems'  $r(109) = .40, p < .001$ . However, problem severity  $r(109) = -.09, p = .17$  and novelty  $r(109) = .09, p = .17$  were not significantly correlated with students' self-reported intention to seek help.

The positive correlation between confidence and help-seeking intention was in the expected direction (Newman & Goldin, 1990; Ryan & Shin, 2011). However, the negative relationship between difficulty and help-seeking intention was unexpected as previous research indicated that individuals had a higher tendency to seek help on difficult problems in order to avoid reciprocation costs (Cleavenger, Gardner, & Mhatre, 2007). The positive correlation between the number of possible solutions and help-seeking was also somewhat surprising, but may indicate that individuals who are able to think of more than one solution to a problem also think they need and can get more information in order to determine the next steps in their problem solving process.

Table 22: Study 3 – Correlations between items measuring perception of problem characteristics

	Severity	Difficulty	Confidence	Solutions	Novelty	Help-seeking intention
Severity	1.00					
Difficulty	0.76*	1.00				
Confidence	-0.21*	-0.28*	1.00			
Solutions	0.00	0.01	0.47*	1.00		
Novelty	0.23*	0.35*	-0.05	0.37*	1.00	
Help-seeking intention	-0.09	-0.21*	0.52*	0.40*	0.09	1.00

Additionally, several significant correlations were indicated between the independent variables, which were important to examine in order to test the assumption of multicollinearity for multiple regression. The perception of the problems' severity was significantly correlated with the perception of the problem's difficulty  $r(109) = .76, p < .001$ , students' self-reported confidence in their ability to overcome the problem  $r(109) = -.21, p = .01$ , and novelty  $r(109) = .23, p < .01$ . The perception of the problems' difficulty was significantly correlated with students' self-reported confidence in their ability to overcome the problem  $r(109) = -.28, p = .001$  and how frequently they had encountered the problem before  $r(109) = .35, p < .001$ . Finally, students' self-reported confidence in their ability to overcome the problem was significantly correlated with the perception of the number of possible solutions  $r(109) = .47, p < .001$ .

The perception of the number of solutions for the problems' was significantly correlated with novelty  $r(109) = .37, p < .001$ . Despite several strong to medium strength correlations between the independent variables, tolerance and VIF statistics indicate that the regression equation does not violate the assumption of multicollinearity. The lowest tolerance coefficient was .38 and the highest VIF coefficient was 2.63, which are both within the acceptable ranges of having a greater tolerance than .2 and a VIF less than 4 (O'Brien, 2007).

All other assumptions for the regression analysis were also met. An analysis of standard residuals was carried out, which showed that the data contained no outliers (Std. Residual Min = -2.64, Std. Residual Max = 2.26). The data also met the assumption of independent errors (Durbin-Watson value = 1.99). A histogram of standardized residuals indicated that the data contained approximately normally distributed errors (Figure 2), as did a normal P-P plot of standardized residuals (Figure 3). The scatterplot of standardized predicted values showed that the data met the assumptions of homogeneity of variance and linearity (Figure 4).

Figure 2: Study 3 - Histogram for intention to seek help

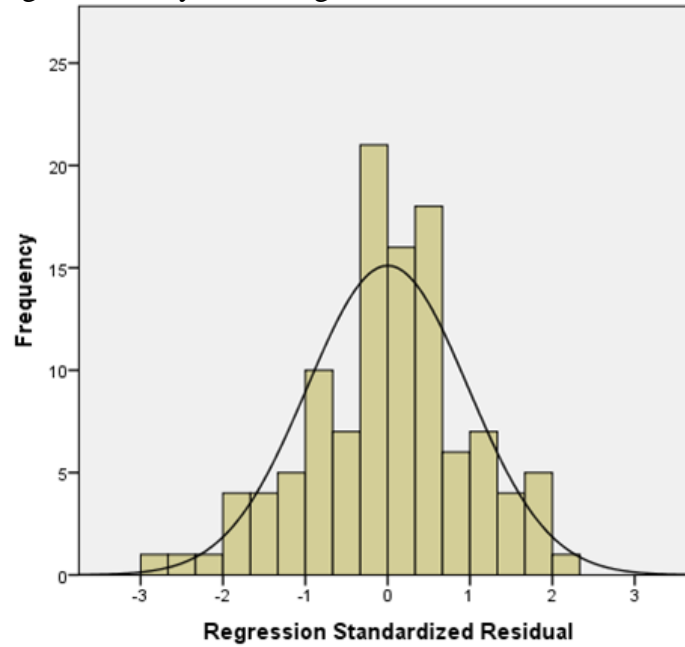


Figure 3: Study 3 - Normal P-P plot of regression standardized residuals for intention to seek help

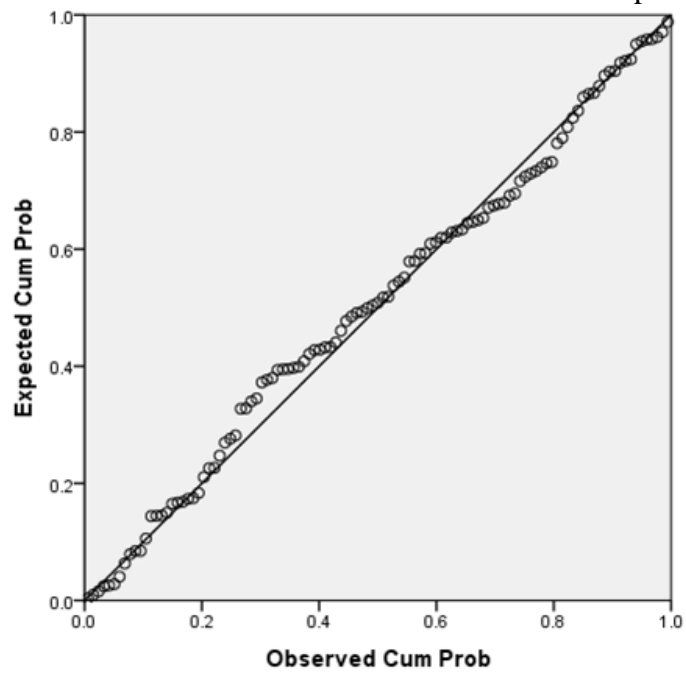
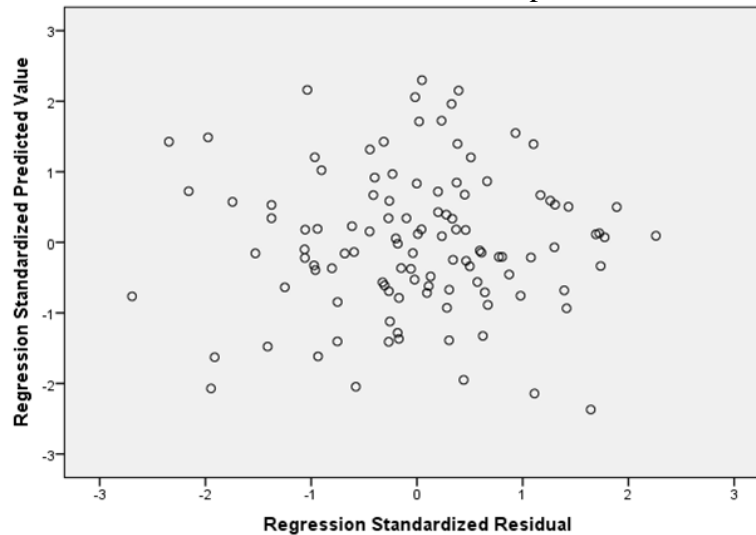


Figure 4: Study 3 - Scatterplot of residual and predicted value for intention to seek help



Since the assumptions were satisfied, a multiple regression equation was calculated with students' ratings of problem severity, difficulty, confidence in their ability to overcome, perceived number of solutions, and frequency of encountering the problem as predictors of help-seeking intention. Overall the five problem characteristics explained a significant proportion of variance in intention to seek help,  $R^2 = .32$ ,  $F(5, 105) = 10.04$ ,  $p < .001$  (Table 23).

Table 23: Study 3 – Regression coefficients for items measuring perception of problem characteristics when predicting help-seeking intention

	B	SE	$\beta$	T	P	Semi Partial Correlation
(Constant)	395.31	238.45	-	1.66	0.10	-
Severity	0.20	0.16	0.16	1.28	0.20	.103
Difficulty	-0.32	0.17	-0.25	-1.89	0.06	-.182
Confidence	0.55	0.13	0.40	4.14	0.00	.332
Solutions	0.18	0.10	0.18	1.74	0.08	.140
Novelty	0.11	0.11	0.10	1.01	0.32	.081

Note:  $R^2 = .32$ ,  $F(5, 105) = 10.04$ ,  $p < .001$

When controlling for the other problem characteristics, confidence in their ability to overcome the problem significantly predicted help-seeking intention,  $\beta = .40$ ,  $t(105) = 4.14$ ,  $p <$

.001. While problem difficulty  $\beta = -.25$ ,  $t(105) = -.19$ ,  $p = .06$  and the number of possible solutions  $\beta = .18$ ,  $t(105) = .18$ ,  $p = .08$  were predictors with low Type 1 error rates, these variables only explained small amounts of variance (3% and 2% respectively) as indicated by their semi-partial correlation coefficients. The results are somewhat surprising as severity (Hinson, & Swanson, 1993), difficulty (Cleavenger, Gardner, & Mhatre, 2007), and novelty (Lee, 2002) had previously been linked to help-seeking behavior in work contexts and were expected to predict help-seeking intention. However, the characteristics had not previously been considered simultaneously. Based on the results of this study, there is some evidence to suggest that problem characteristics impact help-seeking. Confidence in the ability to overcome the problem accounts for the largest amount of variance and was only problem characteristic that predicts help-seeking intention in academic settings.

### **Discussion**

One purpose of this study was to expand help-seeking research into entrepreneurship education. To examine the help-seeking tendencies of both entrepreneurial and non-entrepreneurial students, a cluster analysis was conducted that followed similar procedures as previous research (Karabenick, 2003). However, the results were slightly different. The first difference occurred because higher scores on the executive help-seeking scale did not cluster with higher scores on the avoidant help-seeking scale. Again, this indicates that the Pragmatic Executive Help-Seeking Scale, developed in Study 1, measures a different construct than the avoidant help-seeking scale. The second difference occurred because avoidant help-seeking, while rated the highest on the third (i.e. ambivalent) cluster, did not emerge as the dominant help-seeking tendency for any cluster.

Interestingly, there were no significant differences between how scores clustered and whether or not participants were focused on entrepreneurship. The proportion of students whose responses clustered into the adaptive and executive cluster were similar for both entrepreneurial students and non-entrepreneurial students. This is somewhat surprising as it was hypothesized that entrepreneurial students would be more likely to adhere to executive help-seeking tendencies given the variety of problems that students encounter and the norms in this setting (e.g. Bae, Qian, Miao, & Fiet, 2014; Yoder, Kleine, Carpenter, Fry, 2013). The findings may be a result of the fact that help-seeking tendencies were measured at a general, or trait, level and prompted the students to consider help-seeking in an academic setting (i.e. a required class). Furthermore, while the norms in some entrepreneurship education classes differ from traditional academic environments, in this study, the impact of those differences may not have been as large as expected.

Future studies may still find differences between how entrepreneurial students and non-entrepreneurial students seek help. In this study, entrepreneurial students did have higher mean rating on the intention to seek help items than non-entrepreneurial students. Therefore, future researchers would benefit from either manipulating the context that was provided in the problem scenarios or actually observing help-seeking behavior of entrepreneurial students in multiple contexts to see how behaviors change. Similarly, since the analysis combined all students enrolled in an entrepreneurship program, it is possible that some entrepreneurial students had not engaged in entrepreneurship outside of the classroom. Examining help-seeking differences of students at different stages of entrepreneurship education programs may provide additional insights.

Regardless, the finding that entrepreneurial students' had higher scores on intention to seek help items supports the notion that help-seeking is likely an important and helpful strategy in entrepreneurial settings (e.g. Au, Chiang, Birtch, & Kwan, 2014). Scores on the avoidant help-seeking scale were lower than the scores on the other two scales for both entrepreneurial students and non-entrepreneurial students. Both of these results are consistent with results from previous studies with college age students (Karabenick, 2003; Karabenick, 2004; Reeves & Sperling, 2015a). For both entrepreneurial and non-entrepreneurial students, scores on the executive and avoidant help-seeking tendency scales differed significantly, which is different from previous studies where the results on the two help-seeking scales were indistinguishable (Karabenick, 2003; Magnusson & Perry, 1992; White & Bembenutty, 2013).

Scores on the Pragmatic Executive Help-seeking Scale more closely related to scores on the adaptive help-seeking scale than scores on the avoidant help-seeking scale. This finding may indicate that scores on this scale may actually relate to work engagement instead of work avoidance. Additionally, executive help seekers and adaptive help seekers both had a higher intention to seek help than avoidant help seekers. This suggests that both of these types of help seekers may be more likely to actually seek help, which is consistent with the theoretical definition of both adaptive and executive help-seeking (e.g. Nelson-Le Gall, 1981; Karabenick & Knapp, 1991; Karabenick, 2014).

These findings expand upon previous help-seeking research by examining a new context. However, similar to most help-seeking research, the previous results focused on the decision to seek help, as represented by help-seeking tendencies, (the third step in the help-seeking process) (Karabenick, 2014). Few studies have considered how students perceive problems (the first step in the help-seeking process) and how those perceptions and problem characteristics impact both



the decision to seek help (the third step in the help-seeking process) and how to implement a help-seeking strategy (the seventh step in the help-seeking process). Therefore, additional analyses were conducted to examine these under-studied steps of the help-seeking process.

Results indicated that there were no differences between how entrepreneurial and non-entrepreneurial students perceived problems on any of the problem characteristics. Across all participants, perception of problem severity, difficulty, novelty, the total number of possible solutions were rated for each problem along with a rating of their intended help-seeking behavior. Previous researchers had examined each of these topics individually or theorized that they may influence help-seeking behavior (Cleavenger, Gardner, & Mhatre, 2007; Hinson, & Swanson, 1993; Lee, 1997; 1999; 2002); however, they had never been examined simultaneously. While holding the other perceptions constant, confidence in ability to overcome a problem was the only significant predictor of help-seeking intention across all the problem scenarios. Higher confidence ratings corresponded to higher ratings of help-seeking intention and vice versa. This finding is consistent with previous research, which has shown that self-efficacy relates to help-seeking behavior and adaptive help-seeking tendencies (Karabenick, & Knapp, 1991).

While not significant predictors, problem difficulty and the total number of solutions may still be important factors that impact help-seeking. Both factors were significantly correlated with help-seeking intention. Higher difficulty ratings corresponded to lower rating of help-seeking intention (e.g. Cleavenger, Gardner, & Mhatre, 2007; Hinson, & Swanson, 1993), which was contrary to expectations. Previous research in business settings indicated that workers were more likely to seek help for more difficult problems in order to avoid the need to reciprocate, or

offer, help when other individuals encounter easier problems. Since all participants were in an academic setting, the costs and expectations surrounding help-seeking are different.

Lower ratings for the total number of solutions that participants perceived for the problems corresponded with lower ratings on the help-seeking intention. In essence, students were less likely to seek help on problems that were perceived to be well-defined. It is possible that if students are able to conceptualize a solution path, they will be more likely to attempt to solve the problem on their own and only seek help if initial efforts were unsuccessful. A moderate, positive correlation between perceived confidence and the total number of solutions was found, which indicates that students may be more confident in their ability to solve a problem if they can conceptualize multiple ways to approach the solution. Interestingly, miniscule correlations were found between the number of perceived solutions and ratings of problem severity and difficulty. This result may indicate that the participants were not necessarily deterred from a problem simply because it was ill or well defined.

### **Limitations**

This study had several notable limitations. First, the sample presented several challenges. The number of entrepreneurial participants was relatively small, which limited statistical power throughout the analyses. Initially, the entire sample of entrepreneurial students was to be drawn from the College of Engineering in order to minimize any bias that may be caused by comparing across multiple colleges. However, relatively few entrepreneurial students from the College of Engineering participated, so recruitment was expanded, which may have influenced the results.

The overall response rate to the survey was also low. There may be inherent differences between students who voluntarily participated and students from the general student population

at Penn State. Incentives were provided in order to encourage participation, but simply offering an incentive may have impacted both the demographics of the sample and the results. For instance, students may have sped through the survey in order to be considered for the lottery instead of carefully considering their responses. Similarly, because participants were able to complete the survey at home, they may not have spent as much time as they would have in the presence of a proctor.

The survey was also long, which may have impacted how carefully participants considered their responses. The length of the survey also may have contributed to the amount of missing data. The problem scenarios were randomized in order to minimize any order or fatigue effects. Additionally, only three problem scenarios for each type of problem that emerged from the previous study were included in the measure in an attempt to keep the length of the survey manageable. However, only including three scenarios in combination with the small sample size, prevented the comparison of the perception of problem characteristics and help-seeking intentions across problem types.

Finally, the study relies entirely on self-reported information. The use of conditional statements has been shown to control for the need to seek help and to relate to actual help-seeking behavior (Karabenick & Knapp, 1988; 1991). However, the responses on the new scales may not directly correspond to behavior. Future research should utilize observations or find other behavioral evidence.

### **Future Directions**

Future research studies should attempt to replicate these findings in other contexts. Though no differences were found in students' general help-seeking tendencies or how they

perceive problems, entrepreneurial students did have higher intention to seek help. A future comparison of entrepreneurial students' help-seeking tendencies with the help-seeking tendencies of actual entrepreneurs would be interesting. Results would help to parcel out some of the similarities and differences between the norms of entrepreneurship education and entrepreneurship outside of academia.

Furthermore, research should focus on examining help-seeking differences within entrepreneurial education. In this study, data from all students enrolled in an entrepreneurship education program were combined for analyses. However, there are many reasons for enrolling in an educational program and not all students have the same level of commitment or engagement with entrepreneurship within any program. Research that compares more advanced, higher-achieving, or more experienced entrepreneurial students may yield unique results.

Due to a small sample size, this study was unable to examine differences between how students seek help on different types of problems (i.e. prior knowledge, personnel, time management etc.). Future research should refine the problem scenarios, gather additional validity evidence to support subscales that measure different problem types, and then test the impact that different problems have on help-seeking. Additional instrumentation could also be developed to determine how the type of help that is sought (i.e. adaptive, executive) may differ based on the type of problem.

## CHAPTER 6

### CONCLUSION

This dissertation addressed understudied areas of help-seeking research in three studies. In the first study, a new scale that measured executive help-seeking was developed. Previously, Likert scales have been used to measure executive help-seeking. However, the existing scales had been unable to distinguish executive help-seeking from avoidant help-seeking. Results from the first study provided two types of validity evidence (AERA, APA, NCME, 2014) to suggest that the Pragmatic Executive Help-seeking Scale measures a distinct element of help-seeking. The results were consistent with theoretical conceptualization that executive help seekers initiate help-seeking interactions (e.g. Roll, et al, 2011).

However, given that executive help-seeking has traditionally been viewed as a negative strategy in academic environments (e.g., Kozantis, Desbiens, & Chouinard, 2007), the development of the Pragmatic Executive Help-seeking Scale potentially challenges the notion that adaptive help-seeking is the only positive form of help-seeking behavior. In certain environments and on certain problems, it may be more beneficial to seek help in a manner that is different from adaptive help-seeking. Instructors should consider the norms and expectations of students' future work environments as well as the actual learning goals of their lessons to help determine when to encourage or discourage certain help-seeking behaviors. For instance, on a biology project that is designed to teach concepts of genetics, adaptive help-seeking interactions should be encouraged on topics related to genetics, but perhaps executive help-seeking interactions should be encouraged on other topics such as how to operate software. This may better mimic the expectations established in workplace environments, where employees tend to seek help more often on topics that not centrally related to their job responsibilities (Lee, 2002;

Nadler, 1987). As a result, this would better prepare students for the transition to the workforce. To be effective in the classrooms, clear expectations for help-seeking would need to be communicated to students, and instructors would need to decide how to respond to requests that are not conducive with the overall goals of the class.

In the second study, students were interviewed to examine the types of problems that entrepreneurial students encountered when working on projects and ventures. The types of problems that students encountered when working on entrepreneurial projects included: cultural problems; problems evaluating or integrating information; problems obtaining or managing resources and finances; problems during the idea generation process; legal problems; problems managing or working with teammates; problems arising from a lack of prior knowledge; problems with technology; and problems managing time. The types of problems that students encountered overlapped somewhat with the types of problems that owners of small business encountered (Hwang & Brown, 1999; Wu & Young, 2002).

Given the wide variety of problems that students encountered, instructors should consider how to both support students when they encounter problems and ways to mitigate the impact of problems that are extraneous to the goal of the course or project. For instance, instructors could decrease, to an extent, the problems students encounter when managing or working with teammates by considering how to form student groups. In entrepreneurship education classes at The Pennsylvania State University (Reeves, Zappe, Kisenwether, & Follmer, 2015), most of the courses have students pitch ideas during the first week of classes and students vote on the best ideas. Then once students have narrowed down the ideas, groups are formed around which of the remaining ideas each individual student would like to work on. Unfortunately, this creates a power dynamic within the group with the person that generated the idea as the leader, who may

or may not appreciate feedback from teammates. Additionally, students who did not generate the idea may not be as committed to the idea as the individual who did generate the idea, which may cause additional conflict. If instead, students formed groups based on other criteria such as experience with entrepreneurship or skill sets (i.e. programming, advertising, accounting, etc.) and then the group generated an idea together, everyone would have a stake in the idea and some of these conflicts may be reduced. Commitment might also increase, but students may also feel freer to change ideas, as encouraged by many entrepreneurs (Gartner, Mitchell, & Vesper, 1989), if some aspect of the project, like the market research, does not produce positive results. By mitigating some of these group conflicts, students would be able to concentrate on meeting other important learning objectives.

The main purpose of the second study was to gather examples of real problems that students faced when working on entrepreneurial ventures to create an instrument to be used to measure help-seeking intentions at a state level. Most previous research measured help-seeking at trait level, with self-report Likert scales (Karabenick & Knapp, 1988; 1991). In previous studies, researchers asked students to consider their help-seeking behavior in a given environment. The assumption being that students' general tendencies would be similar across all problems that may be encountered in that environment. The few studies that have either observed or recorded actual help-seeking behavior on specific problems were primarily concerned with motivational, achievement, or social differences between individuals with differing rates of help-seeking and did not examine how multiple types or multiple characteristics of problems influence the help-seeking process (e.g. Beal, Qu, & Lee, 2008; Puustinen & Rouet, 2009).

The third study utilized the measures developed in the first two studies and examined how the perception of problems' characteristics impact help-seeking (i.e. problem severity,

difficulty, novelty, etc.). The results indicated that when holding other characteristics constant, confidence in ability to overcome a problem was the only significant predictor of help-seeking intention across all the problem scenarios. In essence, students who thought that they could solve a problem, even if they were stuck or having difficulty, were more likely to seek help. This provides further evidence to suggest that instructors should provide support and encouragement to students to increase students' belief in their ability to succeed.

This study also represented an initial step of expanding academic help-seeking literature into entrepreneurship education. Previously, few studies had focused on self-regulatory strategies, such as help-seeking, in entrepreneurship education (e.g. Au, Chiang, Birtch, & Kwan, 2014). The results found that entrepreneurial students had a higher intention to seek help when compared to non-entrepreneurial students, which indicated that entrepreneurial students might consider help-seeking to be useful strategy in entrepreneurial settings (e.g. Au, Chiang, Birtch, & Kwan, 2014). Unexpectedly, however, entrepreneurial students did not produce higher scores on the executive help-seeking scale relative to non-entrepreneurial students. Similarly, using cluster analysis procedures from previous studies (Karabenick, 2003), resulted in no significant differences between how help-seeking scores clustered and students' enrollment in an entrepreneurial program. The proportion of students whose responses were clustered into each help-seeking type was similar for both entrepreneurial students and non-entrepreneurial students. Therefore, at the trait level, there is no evidence to suggest that help-seeking tendencies differ across in entrepreneurial and non-entrepreneurial students in academic settings.

The third study also examined how entrepreneurial and non-entrepreneurial students perceived problems. The results again provided little evidence to suggest that entrepreneurial students were inherently different from students in other domains, which may suggest that



anyone can learn and the develop skills and abilities that relate to being a successful entrepreneur (e.g. Duening & Stock, 2013).

Together the three studies made four contributions to the existing literature by creating a new measure of executive help-seeking, creating a new measure that can be used to examine help-seeking intentions at a state level, providing initial evidence to suggest that characteristics of problems impact help-seeking, and expanding help-seeking research into entrepreneurship education. While each study had limitations, many future research possibilities exist that would expand upon the current findings.

Throughout the dissertation, several future research projects were suggested. Clearly, there are plenty of opportunities to learn more about help-seeking, but in closing I would like to highlight several of the more prominent issues. First, it is important to combine knowledge gained and published about help-seeking from different academic domains. Currently, the research is divided based on instructional condition (i.e. classroom, computer mediated, and cognitive tutors/on demand programs) and context (i.e. classroom, small business, organizational psychology, entrepreneurship education). Researchers from all domains would benefit from converging the findings from the various literature bases.

Second, additional studies should focus on gathering more validity evidence for both the new Pragmatic Executive help-seeking scale and the other scales measuring help-seeking tendencies. Research should especially ensure that scores on the Pragmatic Executive help-seeking scale and other measures of help-seeking tendencies correspond to actual behavior. Responses on self-report scales can provide useful insight into the help-seeking process, but may be somewhat biased due to socially acceptable responding or an inaccurate reflection of reactions to problems or situations. Behavioral research and other studies that focus on gathering more

validity evidence may also help to further distinguish between Pragmatic Executive help-seeking (help-seeking that seeks answers to increase efficiency) and executive help-seeking that is driven primarily by work avoidance. In some situations, the two types of executive help-seeking may be identical (i.e. classrooms), and in others (i.e. a large company) they may represent completely different behaviors depending on the norms of the environment and the characteristics of the problem (i.e. not related to job description)

Third, future research should examine how different types of problems influence help-seeking behavior and the type of help individuals seek. The problem scenarios that were developed in this dissertation should be adapted and refined to allow for the examination of help-seeking at state, or problem, level. Given the variety of problems that students encounter, it is important to understand for which types of problems students will and will not seek help. Results from these future studies could then be used to design interventions to encourage effective help-seeking for specific types of problems.

Fourth, researchers should examine the help-seeking differences of students within entrepreneurship education programs. Because the sample size was small, students from all levels of entrepreneurship experience and involvement were grouped together in the current research. There are many different reasons for enrolling in an entrepreneurial program that can include being required to complete a minor and choosing one that overlaps the most with coursework, thinking that the minor will look good on resumes when applying to jobs, or actual interest in the subject matter. Students with different goals for their time in the minor may behave differently. For example, students that have or are currently working on a new venture may have different help-seeking tendencies than students who have only completed a course or two related to entrepreneurship. Similarly, students who are interested in working on

entrepreneurial ideas in different industries may have different help-seeking tendencies due to the norms or regulations of that industry. Examining each of these groups individually would lead to a more nuanced understanding of help-seeking in entrepreneurship education. Results from these studies could potentially inform the development or refinement of an entrepreneurial method, increase awareness of self-regulated learning strategies, and predict either achievement, entrepreneurial engagement, or entrepreneurial intention of students enrolled in entrepreneurship education courses and programs.

Finally, researchers should examine the relationship between academic help-seeking behavior and help-seeking behavior outside the classroom. For instance, do help-seeking tendencies and motivations found in classrooms transfer to the workplace? Ultimately, the strategies taught in the classroom should transfer and be beneficial to students and learners in other contexts. Since help-seeking has been linked to positive social and academic outcomes in the classroom, expanding the research will increase our understanding of how to improve the help-seeking process throughout all stages of personal and professional development.

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### **Appendix A: Pragmatic Executive Help-seeking Scale**

Please respond to the following statements when thinking about how you would have behaved in the last required (entrepreneurial) course that you completed.

(1=strongly disagree through 5=strongly agree).

1. If I get stuck on something, I seek help so the problem can be solved accurately by an external source.
2. When I do not understand something, I seek help so the problem can be solved quickly by an external source.
3. If I get stuck on a problem, seeking help allows me to concentrate on other problems.
4. If I need help when working on problems, I usually ask questions so that an external source can provide a solution.
5. If there is something I do not understand, I prefer an external source give me the answer so that I can continue to make progress.

### **Appendix B: Adaptive Help-seeking Scale**

Please respond to the following statements when thinking about how you would have behaved in the last required (entrepreneurial) course that you completed.

(1=strongly disagree through 5=strongly agree).

1. If I do not understand something, I usually want someone to explain it to me and not just give me the answer.
2. If there is something I do not understand, I prefer someone give me hints or clues rather than the answer.
3. When I do not understand something, I usually want someone to show me the steps involved in solving the problem.
4. If I need help, I usually ask questions so the person will provide just enough information so I can figure it out myself.
5. If I get stuck on something I usually ask someone for just enough help so that I can keep working through it.



### **Appendix C: Avoidant Help-seeking Scale**

Please respond to the following statements when thinking about how you would have behaved in the last required (entrepreneurial) course that you completed.

(1=strongly disagree through 5=strongly agree).

1. If I do not understand something, I prefer to guess rather than ask for assistance.
2. Even if the work is too hard to do on my own, I do not ask for help.
3. I prefer to do worse on something that I could not finish, rather than ask for help.
4. If I need help on a problem I skip it.
5. When I do not understand something, I usually do not ask questions.

**Appendix D: Help-seeking Threat Scale**

Please respond to the following statements when thinking about how you would have behaved in the last required (entrepreneurial) course that you completed.

(1=strongly disagree through 5=strongly agree).

1. Getting help is an admission of my own lack of ability or ignorance.
2. I prefer to fail on my own rather than to succeed because I got help.
3. I think less of myself when I cannot do my work without help.
4. People think less of me if I succeed only because I got help.
5. I feel uneasy about what people think if they found out I need help in order to succeed.
6. I prefer that other people do not find out that I seek help.

### Appendix E: Interview Protocol

1. Tell me about your experiences with entrepreneurship at Penn State.
  - a. Tell me about your current entrepreneurial courses. (Go one class at a time, bring up course activities).
    - i. What was the most beneficial course or activity in the minor so far? Why?
    - ii. Have you been able to connect your interests or major with the content taught in the ENTI minor?
      1. How?
      2. What barriers do you experience?
    - iii. Tell me about the challenges that you experience in your courses, activities, or entrepreneurial endeavors.
  - b. Tell me about the entrepreneurial activities that you have attended or participated in on campus?
    - i. Have they influenced you? Describe.
    - ii. What entrepreneurial activities would you have liked to have participated in or seen more of as a student?
  - c. What other resources for entrepreneurs have you interacted with at Penn State or in State College? (go one at a time)
    - i. What is the nature of your relationship/interaction?
2. Tell me how you became interested in entrepreneurship.
  - a. Do you have parents or relatives that are entrepreneurs?
    - i. What do they do?
    - ii. Have they given you any advice on pursuing entrepreneurship?
  - b. Tell me about any projects that you are working on outside of class (if any)
    - i. What other entrepreneurial ventures have you worked on in the past?
  - c. Tell me about your career goals/plan?
    - i. Has your career plan changed during your time at Penn State?
    - i. How/Why?
3. What is your definition of entrepreneurship?
  - i. How has that changed since you started learning more about entrepreneurship?
    - a. Since you started learning about entrepreneurship, what has surprised you the most about the field?
    - b. What is the most frustrating aspect about entrepreneurship?
    - c. What made you decide to pursue the ENTI minor?
      - ii. Tell me about any perceived benefits to completing the minor.

- iii. What do you hope to learn/accomplish while completing the ENTI minor?
- iv. Which cluster are you interested in completing? Any particular reasons?
- d. How did you hear about the ENTI minor?
  - i. Where do you get information regarding entrepreneurship? Describe
  - ii. Where do you get information about minors/courses? Describe
- e. Do you talk about the minor with any friends/ family?
  - i. What do you tell them?
- f. Are the requirements / structure of the minor clear? How could it be made more accessible?
- g. How could the courses/minor be changed to be more relevant to your particular field?
- h. How else would you improve the minor?
- i. Do you have any weaknesses that you would like to target by participating in the minor?
- j. Anything else you want to tell me about regarding the ENTI minor, your courses, goals, or other e-ship related experiences?
- 4. Tell me about a time in which you were uncertain about the next step/direction you were going to take in an entrepreneurial endeavor (class then outside of class)?
  - i. Describe how you went about approaching/resolving this situation.
  - ii. Do you remember another prominent example/situation?
  - a. Do you remember a situation in which you were reluctant to seek help/information?
    - i. Tell me about that situation
    - ii. Why were you reluctant to seek help/information?
    - iii. Do you remember another situation?
- 5. In general, if you had a really difficult situation or problem, what would you do first to find the solution? Why?
  - a. What next?

## Appendix F: Problem Scenarios

The following statement will be provided before each of the problem scenarios.

**You have been working on a final project in a required (entrepreneurial) course. You are in a group with three other members. There are ten days until the project is due.**

1. One member of your team has not been producing quality work, which is influencing overall progress and the quality of the project.
2. One member of your team has not been contributing as much as everyone else, which is influencing overall progress and the quality of the project.
3. You do not think one of your teammates cares as much about the project as you do, which is influencing overall progress and the quality of the project.
4. As you are working, the technology you are working with starts malfunctioning and you are not sure what is causing the error or how to fix it.
5. You realize that you need to use a particular technological tool to complete the project, but you do not know how to utilize the tool effectively.
6. Your computer started malfunctioning. It has produced a specific error code.
7. Your initial idea for the project received negative feedback from the instructor. Now you need to submit ideas for the project. You have been thinking for several weeks, but you do not have an idea for the project.
8. Your initial idea for the project received negative feedback from the instructor. Now you need to submit ideas for the project. You have been thinking for several weeks, but your ideas are not as well developed as your peers.
9. You came up with several ideas for your project, but you are not sure which idea will be good enough to be successful.
10. A great new idea for the project has just occurred to you that would greatly impress your instructor, but you are already committed to the original idea and do not have enough time to change directions.
11. There are many tasks that you need to accomplish in order to complete the project, but you are not sure how to prioritize them.
12. You do not think you will be able to complete the project before the final deadline.
13. You have a brilliant new idea that would solve multiple problems you have encountered while working on this project, but you do not currently have enough money or resources to follow through with your idea.
14. You have ordered all the materials that you need to complete your project. You spent all of your available funds on these materials, but when they arrive, you realize that they do not function as expected. As a result, you cannot complete the project as planned.
15. You realized that you do not have access to a particular tool that would allow you to complete the project.

16. You have talked to several individuals about your project, and they all offered different and conflicting advice. You are not sure the best way to proceed.
17. You are not making adequate progress and are at risk of not meeting the deadline. You are unsure whether the problem is a team member, the technology you are working with, the viability of the idea, or another issue.
18. You have been working on a project for several weeks, but you are unsure about which criteria are going to be used to evaluate your final product.
19. You have come to a task that no one in your group knows how to complete because you have not learned enough about the topic or domain.
20. You think that developing an app would be the ideal method for completing the project, but no one in your group has any programming skills.
21. No one in your group knows how to utilize a certain formula or technique that is needed in order to complete the project.

**After each scenario students will rate each of the following conditions on a sliding scale (0-100).**

1. How detrimental would this problem be if you were in this situation? (This would not be a problem to This would be an extremely large problem.)
2. How difficult would it be for you to overcome this problem if you were in this situation? (not at all difficult to extremely difficult)
3. How confident are you that you could overcome this problem if you were in this situation? (not at all confident to extremely confident)
4. How many solutions can you envision to address this problem? (Only one to Very Many)
5. How often have you encountered a problem like this? (never to all the time)
6. How likely would you be to seek help in this scenario if you needed help in this situation? (not at all likely to extremely likely)

## VITA

### Philip M. Reeves

#### Education Information

B. S.	2008 Psychology	Lehigh University
M. Ed.	2010 Secondary School Counseling	Lehigh University
M. S.	2012 Educational Psychology	The Pennsylvania State University

#### Publications in Peer Reviewed Journals:

- Sperling, R. A., Ramsay, C. M., **Reeves, P. M.**, Follmer, D. J., & Richmond, A. S. (*in press*). Supporting students' knowledge construction and self-regulation through the use of elaborative processing strategies. *Middle School Journal*.
- Reeves, P. M.**, & Sperling, R. A. (2015). A comparison of technologically mediated and face-to-face help-seeking sources. *British Journal of Educational Psychology*, 85(4), 570-584.
- Reeves, P. M.**, Zappe, S. E., Kisenwether, E. C., Menold, J., & Follmer, D. J. (2015). Comparisons of faculty and student definitions of entrepreneurship. *Journal of Engineering Entrepreneurship*, 6(2), 25-43.

#### Book Chapters Published in Edited Volumes:

- Sperling, R. A., **Reeves, P. M.**, Follmer, D. J., Towle, A. L., & Chung, K. S. (*in press*). Teaching behaviorism to support self-regulation, integration, and transfer. In M. C. Smith & N. DeFrates-Densch (Eds.), *Challenges in Educational Psychology Teaching and Learning*. Charlotte, NC: Information Age Publishing.
- Reeves, P. M.** (2014). Academic help-seeking research: Exploring future directions. In R. Morison (Ed.), *Motivation: Psychology, Strategies and Impact on Performance* (pp. 93-108). New York, NY: Nova Science Publishers.

#### Peer Reviewed Papers Published in Conference Proceedings

- Zappe, S. E., **Reeves, P. M.**, Mena, I., B., & Litzinger, T., A. (2015, June). *A cross sectional study of engineering students' creative self-concepts: An exploration of creative self-efficacy, personal identity, and expectations*. Paper presented at the annual meeting of the American Society of Engineering Education, Seattle, WA. In proceedings of the 122<sup>st</sup> ASEE Annual Conference & Exposition (Paper ID 11165). Washington D.C., American Society for Engineering Education.
- Zappe, S. E., **Reeves, P. M.**, Mena, I., & Litzinger, T. A. (2014, October). The relationship between creative self concepts, perceptions of global readiness, and travel experiences of engineering students. *In Proceedings of the IEEE Frontiers in Education Conference*. Paper presented at the annual IEEE Frontiers in Education Conference. Madrid, Spain (pp. 981-987). Piscataway, NJ, IEEE.