Academic Help-Seeking and Achievement of Postsecondary Students: A Meta-Analytic Investigation

Academic Help-Seeking and Achievement of Postsecondary Students: A Meta-Analytic Investigation

Carlton J. Fong, Cassandra Gonzales, Christie Hill-Troglin Cox, and Holly B. Shinn
Department of Curriculum and Instruction, Texas State University

Nearly all college students require some academic assistance throughout their learning experiences. Rather than a dependent act, help-seeking is a self-regulated and motivated strategy; however, there are mixed findings regarding the relationship between academic help-seeking and academic achievement. Thus, the current study used meta-analytic techniques to assess the relationship between academic help-seeking variables and achievement (GPA, grades, test scores) among postsecondary students in 108 studies (119 samples, N = 37,941). Findings revealed a positive association between self-reported, need-contingent help-seeking behaviors and student achievement; the average weighted correlation was very small but potentially meaningful in the long run. Furthermore, the quality of help-seeking mattered, revealing small to moderate associations of greater consequence. Specifically, avoidant help-seeking and executive help-seeking were negatively correlated to achievement; instrumental help-seeking along with formal help-seeking was positively correlated with academic performance. Moreover, a few factors significantly moderated the relationship between help-seeking and achievement. Implications for research and practice will be discussed.

Educational Impact and Implications Statement
This meta-analysis highlights small but meaningful (in the long run) associations between types of academic help-seeking and achievement within postsecondary student populations. Although avoidant help-seeking was negatively linked with academic performance, instrumental help-seeking, or seeking help for mastery-oriented learning, was positively related with achievement outcomes. Therefore, educators and administrators interested in college student achievement should explore ways of cultivating systems of adaptive help-seeking. To facilitate this work, our study suggests key areas to focus on such as considering the sociocultural context and the types of help-seeking and academic outcome.

Keywords: help-seeking, academic achievement, college student, postsecondary, meta-analysis

Supplemental materials: https://doi.org/10.1037/edu0000725.supp

Learning is hardly ever accomplished alone. Experiencing difficulty throughout the learning process is virtually inevitable for nearly all students, and seeking out help is often required. For decades, educational and psychological researchers have examined this instrumental behavior of help-seeking in a variety of contexts. Although help-seeking has been studied in multiple domains such as counseling, physical health, and mental health, for the purposes of our study, we focus on academic help-seeking, that is seeking assistance in areas focused on academic learning. More specifically, we situate our investigation in postsecondary learning contexts, where adjusting to one's educational environment and the need for self-regulated learning resources are perhaps more salient compared to learning in primary and secondary school settings (Ames & Lau, 1982; Knapp & Karabenick, 1988). College can be fraught with academic challenges particularly as students transition into a new learning context where they are required to navigate their academic journeys in a relatively independent manner (Martin, 2009). Although postsecondary institutions are continuously refining the ways in which they support students' academic development and educational transitions (e.g., orientations, tutoring, learning centers), such resources still require students to seek them out. Addition-

---

ally, college students tend not to seek assistance from these support services (e.g., Alexitch, 2006; Zusho et al., 2007). Thus, there is a clear need for continued research into the help-seeking process so that college students' academic attainment is maximally supported by educators and their institutions.

The volume of empirical and theoretical studies on academic help-seeking has grown substantially over the last four decades. In addition to many studies focusing on antecedents of help-seeking such as students' achievement goals or other self-regulated learning constructs, a large body of research has examined the relationship between help-seeking and academic achievement. Research in this area has been conducted in various geographic locations (e.g., North America, Europe, Asia, Africa) and postsecondary learning contexts (e.g., four-year universities, two-year community colleges, distance education, first-year seminars, developmental education) and learning domains (e.g., chemistry, business, psychology, education, economics, nursing, history, biology, criminology, mathematics, English, engineering, and health sciences). Furthermore, a diverse set of student populations are represented in this literature, including but not limited to students with disabilities, students with reading difficulties, first-generation students, pre-service teachers, medical students, and students who are veterans.

Despite much value placed on help-seeking behaviors and attitudes by researchers and practitioners alike, there have been mixed results regarding the relationship between help-seeking and academic achievement. While most motivated strategies for learning tend to be positively associated with student performance, help-seeking has been found to be weakly correlated with student outcomes such as grades or GPA (Credé & Phillips, 2011). Some have suggested that help-seeking is curvilinearly related to academic achievement, so that high achievers do not actively seek help nor do those with lower achievement who might simply give up or lack well-developed help-seeking skills; instead, those with moderate levels of achievement seek out the most help (Karabenick & Knapp, 1988). Moreover, the quality and characteristics of help-seeking behaviors, goals, and attitudes are often overlooked; however, these aspects may illuminate under what circumstances help-seeking can be maximally productive for students' academic performance (Nelson-Le Gall, 1981). To examine the extant literature on this topic and explore discrepancies in the literature, we aimed to synthesize meta-analytically correlations among help-seeking and college student academic achievement. Over 100 studies have examined this relationship, yet a research synthesis of this nature has yet to be conducted. Given the number of studies that have accumulated on this topic, there is still a lack of clarity regarding the associations of help-seeking variables and academic performance. In addition, considering the diversity of studies conducted on this topic, we sought to investigate if and how these associations may vary by context, student, and outcome characteristics. Systematically examining variability among effect sizes can identify the circumstances under which help-seeking can be most beneficial for students' achievement. Therefore, a meta-analytic synthesis is needed to guide future research on this important topic.

Theoretical Framework

Our synthesis on academic help-seeking was grounded in the literature on self-regulated learning (SRL). Broadly construed, self-regulated learning encompasses the behavioral, cognitive, metacognitive, affective, and motivational aspects of learning. Numerous models of self-regulated learning have been proposed (see Panadero, 2017 for a review), but we situated our study using Zimmerman's (1989) and Pintrich's (2000; 2004) conceptualizations. One aspect of Zimmerman's model of SRL is the triadic analysis, which includes interactions between a student's personal, behavioral, and environmental attributes.

Mapping onto Bandura's (1986) triadic reciprocity of social cognitive theory, this model of SRL emphasized how students perceive their environment and initiate and sustain behaviors in relation to their goals, which are both critical aspects of help-seeking. Most SRL scholars agree that help-seeking is a learning strategy that students employ to manage their resources and regulate their time and study environment. This conception is well-aligned with Pintrich's approach to the regulation of the learning context. One distinct feature of Pintrich's model of self-regulated learning is its relationships to student motivation. Derived from Pintrich's model, the Motivated Strategies Learning Questionnaire (MSLQ, Pintrich et al., 1993) has been one of the most prevalent measures of self-regulated learning, including a help-seeking subscale as part of the resource management measures (Duncan & McKeachie, 2005).

Both conceptualizations of self-regulated learning include various phases that can be applied to the help-seeking process: preparatory, performance, and appraisal (Karabenick & Berger, 2013; Karabenick & Gonida, 2018; Panadero, 2017). Both models specify preparatory phases that involve forethought that encompass planning, task analysis, activation, and self-motivation. With regards to help-seeking, metacognitive forethought is necessary for students to recognize a potential lack of understanding and that assistance might be needed (e.g., Rosen, 1983). In performance phases, both Zimmerman (1989) and Pintrich (2004) emphasized the role of monitoring and control, which may also elicit needs for help-seeking when the process of the learning activity is unclear. Lastly, there is the appraisal phase when students reflect on their performance, an opportunity for them to evaluate if they successfully reached their goal. If their goal is not reached, additional help-seeking may be deemed necessary. In sum, viewed as an intentional action, help-seeking plays an important, self-regulatory function of reducing the discrepancy between current and desired levels of academic performance or student learning (Magnusson & Perry, 1992). On a final theoretical note, given the social nature of help-seeking and its involvement of external agents, conceptual models that forefront the social dynamics of self-regulated learning were important to the study as well (e.g., Social Shared Regulated Learning model; Järvelä & Hadwin, 2013; see Panadero, 2017 for a comparison of self-regulated learning models).

Literature Review

In the following sections of our literature review, we describe the research on academic help-seeking and make distinctions among various help-seeking sources, tendencies, and attitudes. We then highlight measurement issues surrounding academic help-seeking. Next, we focus on the central issue of the present study, which is the association between academic help-seeking, and potential moderators of this association, including study, sample, and outcome characteristics. Finally, we discuss prior reviews related to help-seeking and college academic achievement, identify a gap in the literature, and articulate the need for the current synthesis.

Academic Help-Seeking

Grounded in the literature on self-regulated learning and strategic learning, academic help-seeking refers to the motivated process of recognizing a need for assistance and seeking assistance (Karabenick & Newman, 2006). A traditional view in the achievement motivation literature stressed independence and undervalued the reliance of others (Karabenick, 1998). More contemporary views on help-seeking are dramatically different, affirming its role as a motivated activity students engage in to manage their educational resources pursuant to their goals.

Underscoring the social nature of strategic learning, resource management strategies, including peer learning and help-seeking, are essential, particularly for college students as they navigate a new academic environment (e.g., Weinstein & Acee, 2013). We should note once more that our study's focus was on students' seeking academic assistance rather than help-seeking in psychological or medical matters (e.g., mental health, counseling). While these issues are certainly relevant for students' holistic educational experiences, we limited our scope to academic-related help-seeking.

There are several models that describe the help-seeking process for students (Karabenick & Dembo, 2011; Nelson-Le Gall, 1981). One useful model was presented by Karabenick and Dembo (2011), which included the following steps (not necessarily in the following sequence): (1) determine whether there is a problem; (2) determine whether help is needed/wanted; (3) decide whether to seek help; (4) decide on the type of help (goal); (5) decide on whom to ask; (6) solicit help; (7) obtain help; and (8) process the help received. This model relies on cognitive components of self-regulation to identify both the problem and the type of help needed. Then, students engage in a social learning process by obtaining necessary assistance when experiencing academic difficulties. The social dynamics involved are a key distinguishing feature of help-seeking in relation to other self-regulated learning strategies (Karabenick & Gonida, 2018). After receiving such help, according to Vygotsky (1980) and Piaget (1968), students process the help they receive into their existing framework of knowledge to resolve any dissonance and achieve their learning goals.

Help-Seeking Tendencies and Goals

Third, Students' tendencies and goals toward help-seeking can be operationalized along a continuum from nonadaptive to adaptive (Alexitch, 1997, 2002, 2006; Karabenick & Knapp, 1991; Newman, 1991, 1994). Distinguishing forms of help-seeking as more or less strategic, Nelson-LeGall (1981) shifted the discourse around help-seeking. Since then, in the literature on help-seeking, one specific form of adaptive help-seeking frequently studied is instrumental help-seeking (instrumental goal), in which mastery-oriented students request help that provides support, such as clues or hints, so that a specific problem can be solved independently (Karabenick & Newman, 2009). Instrumental help-seeking prioritizes having the source of help teach the learner how to solve the academic problem instead of being told the answer (Karabenick, 2003; Nelson-Le Gall, 1985). This may involve working through similar problems as a guide or seeking clarification of the problem so one can solve it independently. Numerous research studies have found that instrumental help seeking is an active strategy linked with academic success when faced with challenging tasks (Karabenick, 1998; Karabenick & Newman, 2006; Zimmerman & Schunk, 2001). For instance, U.S. undergraduate students enrolled in chemistry courses with higher levels of adaptive help-seeking, which consisted of instrumental goals for help-seeking with formal sources (e.g., instructor), had higher exam performance (Karabenick, 2003). One plausible explanation for instrumental help-seeking's positive influence on academic performance might be the positive association between strategic help-seeking behaviors and efficacious learning strategies, which in turn, positively influence academic achievement.

Nonadaptive help-seeking, on the other hand, primarily involves a student who avoids help-seeking even when they need assistance (Newman, 2008). This avoidance of help-seeking despite students' need for academic assistance is also known as avoidant help-seeking (Ryan et al., 2001). Perhaps a slight misnomer, avoidant help-seeking refers to a lack of help-seeking and has been linked with other maladaptive outcomes such as decreased self-efficacy and lower academic achievement

(Ryan et al., 2005; Ryan & Shin, 2011). Moreover, help avoiders endorsed a reduced amount of emotional support and social efficacy with their instructors, perceiving their teachers to not care about their learning nor provide useful information. Among postsecondary students, Karbenick (2003) found that compared with students with more instrumental help-seeking tendencies mid-semester, college students with avoidant tendencies had lower subsequent exam performance at the end of the term. Because help-seeking avoidance robs students of the social interactions that lead to important learning resources (McCaslin & Good, 1996; Ryan et al., 2001), for low-achieving students, a vicious cycle often ensues: low-achieving students might require greater academic assistance, but a higher tendency to avoid help-seeking places them at a further disadvantage for subsequent academic achievement (Ryan & Shin, 2011).

In addition to avoidant help-seeking, when students request help but intend for someone else to solve the problem, scholars have identified their behavior as executive help-seeking or expedient goal help-seeking (Nelson-Le Gall, 1985). An executive help source will often disclose the solutions to students, which in turn relinquishes the help-seeker's responsibility to independently solve their problem. This maladaptive form of help-seeking may evolve from students' ego-involvement and a focus on the outcome rather than the process, or in other words, gaining a successful outcome at the expense of the learning process (Magnusson & Perry, 1992). Although executive help-seeking can still be positively linked with students' academic performance (Chun-lin, 2017), other studies have indicated that executive help-seeking may be detrimental to student performance (Bembenutty & White, 2013; Finney et al., 2018).

Help-Seeking Sources

In addition to these three help-seeking approaches, students can seek academic help from a variety of sources. One distinction in the literature focuses on formal and informal sources. Formal sources include instructors or institutional support services, whereas informal sources refer to peers or internet searches (Karabenick, 2004; Makara & Karabenick, 2013). Although college students tend to prefer seeking out informal sources of help (e.g., friends) compared to more formal counterparts such as peer tutors (Knapp & Karabenick, 1988), some studies have shown that formal help-seeking is more positively associated with students' grades (e.g., Kitsantas & Chow, 2007). Because instructors are assumed to have more expertise (Newman & Schwager, 1993), one would presume that preferring formal sources of help would be more adaptive. That being said, seeking aid from informal sources might be perceived to be less threatening or undesirable.

Some studies show mixed evidence regarding preferred sources of help and how they might impact academic performance. For instance, using cluster analysis to create help-seeking profiles in a college student sample, Karabenick (2003) identified two adaptive help-seeking groups (in addition to two maladaptive profiles) of students that differed by help-seeking source (formal versus informal). Although formal help-seeking was not significantly correlated with exam test score, preferred help-seeking source was still a salient indicator in the profile analysis, distinguishing the two adaptive profiles. Namely, the profile with a stronger preference for informal help-seeking also reported slightly more executive or expedient help-seeking than the profile preferring more formal help-seeking. That being said, it remains unclear whether informal help-seeking can be beneficial for academic achievement especially when it may be more convenient for some students. Informal sources such as peers may also have a relatively high level of expertise (Zusho et al., 2007). Thus, it was pertinent for us to evaluate the preferred source of help in the current meta-analysis.

Help-Seeking Attitudes

Various factors can influence students' decisions to seek or avoid help (Clevering et al., 2011). According to Ryan et al. (2001), under-prepared students who may require additional academic support tend not to seek help when they need it, which can create significant learning disadvantages. Barriers to help-seeking may include the inability to accept the need for help or the propensity to shy away from the process of help-seeking (e.g., introversion). Another determinant of help-seeking is a student's attitude toward help-seeking (Ryan & Pintrich, 1997). Based on tenets from the theory of planned behavior (Ajzen, 1991), attitudes are important antecedents to behavioral intentions which in turn can lead to behaviors.

One of the most studied attitudes toward help-seeking is help-seeking threat--how students perceive their self-esteem to be diminished when seeking help (Newman, 2010). For those who endorse high levels of help-seeking threat, the act of seeking help may signal a lack of ability and acknowledge prior academic failures before others (Ames & Lau, 1982). Such a display or admission of low ability is feared to result in negative reactions of judgments. Research has indicated that help-seeking threat and the perceived endangerment of their self-worth can be derived from either peers or teachers (Ryan & Pintrich, 1997). A few studies suggest that possible threats of negative reactions from class-mates are more salient than judgments from instructors (Newman & Goldin, 1990). For adolescents, the degree of perceived threat felt towards help-seeking is directly related to help-seeking avoidance (Kara-benick, 1998). In contrast, students can also endorse help-seeking benefit, or a positive attitude towards help-seeking. This attitude reflects a recognition that seeking help is a useful strategy to promote learning (Newman, 1990). Among elementary-school children, Newman & Goldin (1990) found when students believed that asking questions will help them in their schoolwork, they were more likely to enjoy asking questions. Perceived benefits of help-seeking negatively predicted help-seeking avoidance and positively predicted adaptive help-seeking among older middle school students (Ryan & Pintrich, 1997).

Both negative (threat) and positive (benefit) attitudes towards help-seeking are often theorized as early antecedents to behaviors and more distal outcomes such as GPA; moreover, our study sought to examine all behaviors, goals, and attitudes associated with academic help-seeking. Therefore, we included these constructs in our synthesis as potential correlates to students' academic achievement.

Measures of Help-Seeking

Finally, Students' academic help-seeking behaviors and attitudes have been measured by various instruments and scales. Ryan and Shin (2011) highlighted the challenges associated with students' self-reports of help-seeking such as compromised accuracy due to social desirability. It is important to acknowledge the use of teacher reports of help-seeking as alternative measures of the social interaction shared by the student and instructor (Ryan et al., 2005). While these reports of observable behavior provide an additional vantage point in the measurement of help-seeking behaviors, they have been primarily used in elementary or middle school contexts where the predominant source of help-seeking is the teacher. In postsecondary settings, the incidence of formal help-seeking is much lower compared to informal help-seeking (Knapp & Karabenick, 1988). Therefore, to capture the most common measures of collegiate help-seeking, we focused on self-reported survey measures completed by student respondents.

Given our interest in assessing associations between academic achievement and help-seeking, it was important to control for students' need for assistance (Karabenick & Knapp, 1991; Newman, 1990). As

need for assistance can be confounded with students' view of help-seeking, indicators of help-seeking require operational and conceptual independence from need for assistance (Karabenick, 2003). This can be accomplished by asking students what they do contingent on their need for help--a focus on whether or how they obtain help if they were to seek it out. The importance of controlling for need-contingency also limits the use of behavioral measures of help-seeking, which most prevalently captures students' use of a resource such as office hours, contact with an instructor, or a learning support center (i.e., tutoring). Thus, all measures of help-seeking in the current synthesis capture students' self-reported seeking of need-contingent help. Moreover, focusing on perceptions of help-seeking alleviates the need for the current synthesis to capture all studies assessing the use of a potentially large universe of learning resources (e.g., all studies capturing the frequency of tutoring sessions as a behavioral proxy for help-seeking).

One of the most common survey measures originates from the MSLQ (see Credé & Phillips, 2011; Roth et al., 2016), which has a specific help-seeking scale. The help-seeking scale is categorized as one of the resource management strategies which is housed within the larger category of learning strategies. Consisting of four items, this scale measures the degree to which students manage support from the instructor or other students. Sample items include "I ask the instructor to clarify concepts I don't understand well" and "When I can't understand the material in this course, I ask another student in this class for help." Because these items tap students' overall tendency to seek need-contingent help without specifying an instrumental or executive approach or goal, we term this as general help-seeking. The MSLQ help-seeking also merges together both formal (instructor) and informal (another student) help sources. In addition to MSLQ and its variants, the majority of help-seeking measures came from work based on Karabenick (2003), which assesses various goals for and attitudes toward help-seeking.

Another important facet of help-seeking scales to note is its relatively low internal consistency. The MSLQ's initial validation reported a Cronbach's alpha of a = .52 (Pintrich et al., 1993); this low level of reliability has been corroborated by subsequent studies using MSLQ measures (e.g., Klassen et al., 2008; Komarraju & Nadler, 2013; Lynch, 2006). Comparing across studies, we observed that measures capturing students' goals for seeking help (instrumental or executive) tend to have higher reliability than general help-seeking measures (see Karabenick, 2003; Wolters et al., 2005). Measures of avoidant help-seeking and help-seeking attitudes also seem to be more reliable overall compared to general help-seeking. Variations in internal consistencies will be important to consider for the central objective of the present study, which is to assess the associations between help-seeking measures and college students' academic performance.

Help-Seeking and Academic Achievement

There are mixed results regarding the associations between help-seeking and academic performance. The general assumption is that help-seeking is positively linked with academic achievement (Karabenick, 1998; Kitsantas & Chow, 2007). Experimental studies indicated that help-seeking during problem-solving tasks enhanced performance (Butler, 1998; Newman & Schwager, 1995). Furthermore, correlational studies have also found positive associations between students' help-seeking and academic performance (e.g., Lynch & Dembo, 2004; Micari & Calkins, 2019). However, other studies have shown that college students' course grades were negatively correlated with help-seeking, especially when measured by the MSLQ (e.g., Karabenick & Knapp, 1991). Alternatively, a meta-analysis of a limited number of MSLQ studies indicated that the help-seeking and achievement association was small and nonsignificant (Credé &

Philipps, 2011). In fact, Pintrich et al.'s (1993) initial validation study of the MSLQ with college students found that the correlation between the MSLQ help-seeking subscale and course grades was r = .02.

There are a few proposed explanations for the complex relationship between help-seeking and academic achievement. First, research has supported a curvilinear relationship between help-seeking and need for help-seeking, so that those with a moderate level of need seek the most help (Karabenick & Knapp, 1988). It follows that achievement may not be linearly associated with help-seeking, as students at the lowest end of the achievement spectrum (who presumably require the most academic help) tend to be the least likely to seek out assistance (Newman & Goldin, 1990). That being said, there has been limited evidence of nonlinear trends for academic achievement and contingent help-seeking (Karabenick & Knapp, 1991), despite some evidence suggesting a quadratic trend between help-seeking and need for assistance.

Testing correlations meta-analytically may elucidate if a linear relationship exists across multiple studies. Second, because the MSLQ has been a prominently used help-seeking measure in the literature, other help-seeking measures that focus on help-seeking goals (instrumental, executive, avoidant), specify the help-seeking source, or include attitudes of threat or benefit of help-seeking may provide the needed nuance to understand the associations between help-seeking and performance. In other words, the way one seeks help, from whom help is being sought, and one's attitude toward help-seeking cannot be overlooked. Third, the relationship between help-seeking and academic achievement may be moderated by several factors, including characteristics of the study, the sample, the setting, and the outcome.

Moderators of the Help-Seeking and Academic Achievement Relationship

A number of factors might influence the magnitude and direction of the relationship between help-seeking and academic achievement. In the subsequent sections, we review theoretically and empirically derived factors as potential moderators, including sample, settings, and outcome characteristics. In the current synthesis, note that we also evaluate publication status and year of publication as possible moderators from a priori hypotheses drawing from publication or selection bias and the assumption that over time the help-seeking and achievement association may shift. Regarding sample, setting, or outcome moderators, we highlight next how the literature informed our inclusion of these factors as exploratory moderators.

Sample Characteristics

Gender. Gender differences in help-seeking have been well-documented, often highlighting how men tend to be more avoidant of help-seeking. Masculinity is often associated with independence and thereby avoidant help-seeking (e.g., Ryan et al., 2009; Wimer & Levant, 2011). However, even if men and women may differ on how often they seek help and their attitudes towards help-seeking (Kessels & Steinmayr, 2013), gender as a moderator has not been extensively examined. A study by Spitzer (2000) found a significant interaction effect between gender and self-regulated learning when predicting academic performance, indicating that highly regulated women had higher college GPA. This suggests that for college women, regulating their time and study environment (e.g., help-seeking) might be more predictive of their academic achievement compared to that for their male counterparts.

Age. Students' age may also moderate how help-seeking is associated with academic achievement. Although our study restricted the age range to students enrolled in postsecondary education, research on developmental differences in help-seeking can provide direction for understanding the possible moderating role of age among postsecondary students. In general, as students grow older, two conflicting patterns of help-seeking have been documented. It has been observed that older students become more passive in their learning and do not seek out assistance as much (Newman, 2000). Moreover,

Karabenick (1998) pointed out that as students grow older, they integrate perceived costs associated with help-seeking, which might reduce help-seeking tendencies. However, over time, there is also the potential for students to learn self-regulated and metacognitive strategies and in turn become more adept at seeking help (Newman & Goldin, 1990). For instance, Schenke et al. (2015) found that high school students were more likely to engage in instrumental help-seeking compared to middle school students. Among older adolescents, help sources often shift from formal sources to informal sources such as peers (Newman & Schwager, 1993). Although these developmental trends have been observed in mostly secondary students during adolescent transitions (see Paris & Newman, 1990), similar effects and possibly moderating effects might be extended to postsecondary contexts as students progress from their first year in college through graduation and possibly through graduate school.

Race/Ethnicity and Country of Origin. Notwithstanding few studies on help-seeking in multiculturally diverse settings (Zusho & Barnett, 2011) and on cultural differences in self-regulation in general (Fong et al., 2017; Pintrich & Zusho, 2002), we hypothesized that students' racial/ethnic backgrounds may moderate how help-seeking relates to achievement. A study by Rueda et al. (2010) found that the relation between maladaptive help-seeking and achievement was stronger among White students than for Latino students. Explaining sociocultural differences, Zusho and Barnett posited that students from more collectivistic cultures that emphasize interdependence might approach help-seeking in varied ways compared to those from individualistic cultures. Help-seeking may be less stigmatized in cultures that value interdependence, whereas help-seeking avoidance can be construed as a more independent way for students to navigate their academic environment. Although some studies indicate few cultural differences with regards to desire for academic help (e.g., Stanton-Salazar et al., 2001), other scholars have pointed to structural barriers that prevent racially minoritized students to engage in help-seeking particularly when help sources are of different racial/ethnic groups and perceived to not be trustworthy (e.g., Sáenz & Ponjuan, 2012). The role of race/ethnicity as a moderator may also overlap with the sample's country or countries of origin as well. As an exploratory analysis, we will assess if cultural differences may manifest themselves as moderators of how help-seeking relates with academic achievement.

Setting Characteristics

Type of College. Given our study's focus on postsecondary student help-seeking, we were interested in whether the type of college might serve as a moderator for the relationship between help-seeking and academic achievement. While we acknowledge the variety of institutions of higher education that exist throughout the world, we made the broad distinction between four-year and two-year colleges. In general, in the U.S., two-year or community colleges tend to offer certification for technical and vocational education, associate's degrees, and transfer opportunities to baccalaureate degree institutions. Community college students may have greater out-of-school obligations such as working full- or part-time and caring for dependents (Goldrick-Rab, 2010). Moreover, with higher rates of enrollment in developmental education courses, community college students tend to be placed at higher rates into non-credit bearing courses designed to prepare them academically for credit bearing coursework (Fong et al., 2015). These additional characteristics could either hinder students' level of help-seeking or intensify help-seeking's role in improving their academic performance, given the importance of self-regulated strategies for community college students' academic performance (Fong et al., 2017, 2018). Therefore, we used these previous findings to guide our decision to explore the type of postsecondary institution as a potential moderator.

Learning Modality. Another broad distinction regarding the postsecondary learning context within the help-seeking literature is in-person or online teaching modalities. In fact, Kitsantas and Chow (2007) found that college students preferred seeking help using electronic means over in-person meetings. Comparing face-to-face, online, and hybrid courses, Kitsantas and Chow (2007) found that college students sought more help and reported less help-seeking threat in courses with an electronic/online component. Given the rise of technology over the last two decades, it is presumed that this trend is expected to continue. In terms of moderating the help-seeking and academic achievement relationship, instructional modality may affect how higher and lower performing students prefer help-seeking sources. For instance, Reeves and Sperling (2015) observed how higher performing students preferred face-to-face help sources compared to lower performing students, who intended to use online means to seek help such as discussion boards and online office hours. They suggested that higher performing students might be more strategic when determining the best ways to seek help and interact with their instructors. In light of this interplay among the learning environment, academic achievement levels, and help-seeking tendencies, we explored the contrast of face-to-face and online contexts as a possible moderator.

Outcome Characteristics. As academic achievement can be conceptualized in various ways, we thought it was important to distinguish among overall GPA, course grades, and test scores as a potential moderator when associated with help-seeking. A meta-analysis by Credé and Kuncel (2008) identified that study habits and strategies in general had higher correlations with GPA compared to grades in individual courses. Because individual course grades might be subject to a single instructor's potentially biased grading practices, grade point averages are arguably more representative of a college students' holistic academic performance. Moreover, compared to GPA and course grades, associations with study strategies were the smallest for cognitive admissions test outcomes. Among first-year university students, Brouwer et al. (2016) found that students' informal help-seeking was negatively associated with proficiency exam scores but positively associated with grade point average. Given these divergent results and the differing natures of academic tasks, the type of achievement outcome was a relevant moderator to examine in our meta-analytic study. In addition, whether the outcome was domain-specific (i.e., math, science) versus domain-general (unspecified or a composite of various domains) could also moderate the relationship. Without much empirical or theoretical backing, we treated domain specificity as an exploratory moderator as well.

Prior Reviews

There have been several meta-analytic reviews related to the present study but none that explicitly focus on help-seeking and college student academic achievement. For instance, Dent and Koenka (2016) conducted a meta-analysis on self-regulated learning and achievement but only focused on K-12 student populations and did not separate help-seeking from general self-regulation strategies. Focusing on college students, Robbins et al.'s (2004) review similarly collapsed help-seeking and other study skills and habits into a category called academic-related skills, preventing help-seeking approaches from being teased in isolation. Credé and Philipps (2011) reported on a meta-analysis that focused on the MSLQ and its subscales including the help-seeking scale with college student GPA and grades. However, they only used a single measure of help-seeking and found a subset of the available studies (k = 27). The meta-analysis by Richardson et al. (2012) included help-seeking as a distinct non-intellectual antecedent to college academic performance, but only identified eight studies.

In sum, prior meta-analyses present a part of the picture we were interested in. Some examined a vast underrepresentation of the number of known studies on the current topic. Others fail to isolate the associations between help-seeking tendencies and college academic performance or do not account for additional help-seeking measures and types of help-seeking. Addressing these issues, the present synthesis focuses on multiple help-seeking variables and uncovers under what circumstances help-seeking is most influential by exploring the role of moderating variables of the help-seeking and achievement relationships such as study, setting, sample, or outcome characteristics.

The Present Study

Help-seeking is generally accepted to be an adaptive self-regulated and motivated strategy for students to use and for faculty and institutions to foster so academic resources can be leveraged for enhanced academic performance. However, despite the proliferation of studies on academic help-seeking, there is mixed evidence surrounding the relationship between help-seeking constructs and academic performance. Therefore, we set out to synthesize quantitatively help-seeking studies together to bring about clarity on this topic. In the present study, we conducted a meta-analytic investigation to answer the following research questions: (1) What are the relationships between help-seeking tendencies, goals, and attitudes and academic achievement among postsecondary student populations? (2) If heterogeneity exists, what study, setting, sample, and outcome characteristics influence the magnitude or direction of these relationships? Although we acknowledge the substantial amount of research focused on the motivational antecedents to help-seeking, we limited the scope of our synthesis to focus on relationships between help-seeking and academic achievement.

Method

We used meta-analysis to statistically aggregate findings from studies that address the same research question. Meta-analysis provides new insights by not only considering study quality and the magnitude of the effect when statistically combining results, but also evaluating the role of moderating variables (variables that affect the magnitude or direction of a relationship between two other variables) to explain heterogeneity among effects. To conduct the present study, we followed best practices and recommendations for state-of-the-art methods (Pigott & Polanin, 2020).

Literature Search and Inclusion Criteria

Studies were collected from multiple sources using search strategies designed to uncover exhaustively both published and unpublished research. First, *ERIC*, *PsycINFO*, and *Proquest Dissertation and Theses* databases were searched using keywords "help seeking" OR "help-seeking" in conjunction with an academic achievement keyword: "academic achievement" OR "academic performance" OR grade* OR scholastic OR grade point average OR GPA OR mark OR attainment (quotation marks used for keyword phrases and asterisks used for truncation). We also retrieved studies included in the Credé and Phillips (2011) meta-analysis and updated their search to retrieve additional studies using the Motivated Strategies Learning Questionnaire (MSLQ; Pintrich et al., 1993).

Second, we conducted backward citation searching through reference lists of all included studies. We also performed forward citation searching using Social Science Citation Index and Google Scholar to locate studies that cited foundational articles related to this topic (Alexitch, 2002; Karabenick, 2003, 2004; Karabenick & Knapp, 1988, 1991). Lastly, to solicit further any unpublished data, we contacted the

following professional research organizations: American Educational Research Association (Division C: Learning and Instruction, Motivation in Education SIG, Studying and Self-Regulated Learning SIG) and the American Psychological Association Division 15: Educational Psychology. These organizations distributed our request for studies via listservs, websites, and/or Twitter. Employing these search strategies resulted in a pool of 2,272 potentially relevant studies (see Figure 1 for PRISMA information retrieval flow diagram).

Once potentially relevant studies were identified, titles and abstracts were evaluated using the following inclusion criteria: (1) sample of postsecondary students, (2) a measure of academic help-seeking, (3) academic achievement outcome, (4) data to derive a correlational effect size, and (5), written in English or had an English translation of the report. First, for our sample criterion, we included samples of students enrolled in any educational program beyond secondary education, e.g., vocational education, community college, four-year college, and graduate or professional school. Studies with samples of students enrolled in P-12 contexts were excluded. No geographic restriction was applied. Second, we retained studies using a self-reported frequency or perception of academic help-seeking. We excluded behavioral indicators of help-seeking such as the frequency of attending tutoring sessions or requesting online assistance. Although behavioral indicators of help-seeking are important to utilize and useful to consider, these measures were more aligned with the efficacy of the source of help than help-seeking tendencies. Moreover, we did not implement an exhaustive search of studies examining every potential source of help available in postsecondary learning contexts necessary for a systematic and comprehensive understanding of behavioral help-seeking measures. Third, studies must have included an academic achievement measure operationalized as either students' GPA, grades, or test scores. Fourth, studies needed to include sample sizes and relevant data to derive a correlational effect size, most often provided as a Pearson's r or means and standard deviations of help-seeking from high and low performance groups. When data necessary to derive an effect size were missing, we sent queries to study authors who published their work in 2010 or later due to the limited accessibility of their data over time. We contacted 21 authors for effect size information, and nine authors responded with their data. After a series of three contact attempts through email and/or social media, five authors responded that they could not access the data, and seven did not respond at all.

Study Screening and Data Extraction

For both study screening and data extraction procedures, screeners and coders were established or emerging scholar-practitioners in the fields of motivation, self-regulation, and postsecondary student success with both scholarly and working knowledge of the academic help-seeking literature. Following study screening procedures from Polanin et al. (2019) to help reduce bias and ensure that screening processes were reliable, the first author developed a screening manual collaboratively with the second reviewer. It consisted of clear and consistent instructions based on the aforementioned inclusion criteria. The screening manual was reviewed and discussed among the two screening reviewers (i.e., lead author and second reviewer), emphasizing operational definitions of the population, setting, constructs, and outcomes. After a first round of training with the screening manual, the pair of reviewers screened a sample of 100 titles/abstracts to determine any inconsistencies between their screening decisions; none were found. Reviewers met on a weekly basis to reinforce shared understanding of the screening process. We screened the titles and abstracts of the 2,272 studies and determined that 470 studies were potentially eligible and thus
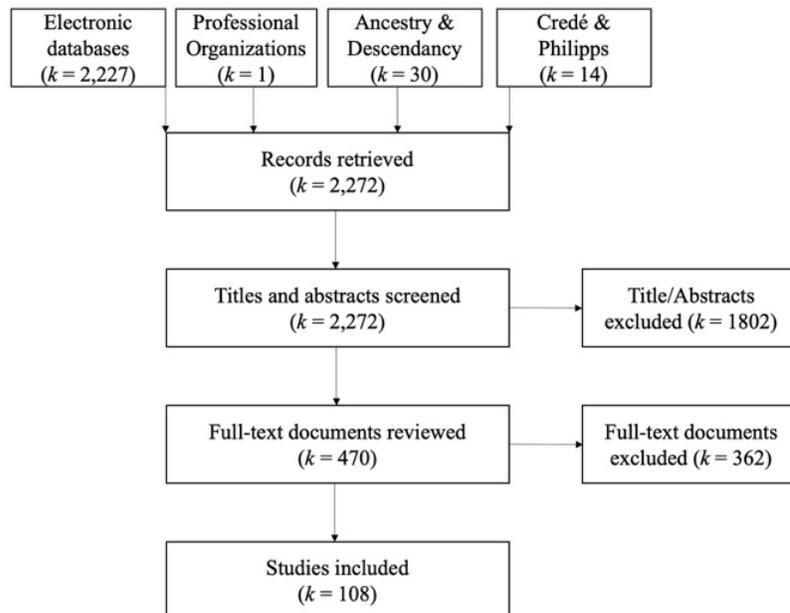
downloaded for further review. Next, after a second round of training re-emphasizing the inclusion criteria, we further screened the downloaded full-text documents for eligibility. With the full-text documents, reviewers were able to apply the inclusion criteria more thoroughly to make final inclusion decisions.

Once the final pool of included studies was determined, the first author led the development of the codebook. The codebook contained information pertaining various characteristics about the study, the setting, the population, the help-seeking constructs and measurement, and the outcome measures. Three coders piloted the instrument by first independently coding the same three reports. After each report was coded, the coders and first author met to discuss and reconcile any discrepancies between coders. From these discussions, modifications were made to the coding instrument in an iterative process to form the final coding guide. With the final coding guide, additional reports were coded independently by coding team members until 95% coder reliability was achieved among all coders. In total, six reports were coded during the training process. After this training, pairs of coders independently double-coded the remaining set of included studies, and the first author continued to run quality checks with coders throughout the coding process. To avoid coder drift, meetings were scheduled weekly with the coding team to address coder reliability. In the event of a coder discrepancy for a report independently double-coded, the first author served as a tie-breaker. Coder disagreements were documented to calculate coder reliability and discussed by the coders to reach consensus. The agreement rate between coders was 93.87% for all the articles coded across all items of our coding protocol before discrepancies were resolved.

The final coding guide is included in the supplementary material. However, we briefly provide details for how we extracted and coded study characteristics from the following domains: study, setting, sample, help-seeking variable, and academic achievement variable. First, for study characteristics, we documented the first author's surname for identification purposes, year of publication, and type of publication (published vs. unpublished). Year of publication was left coded as a continuous variable for analyses, but for descriptive purposes, grouped in decades when presenting a broad overview of the studies. For type of publication, we dichotomously categorized articles, books, and book chapters as published and all other documents (e.g., dissertations/theses and conference papers) as unpublished. Second, for setting characteristics, we captured aspects of the institutional setting, geographic location, and learning modality. For institutional setting, we were interested in the difference between four-year institutions (baccalaureate-granting institutions or graduate/professional schools) and community colleges (two-year institutions granting associate's degrees and certificates) and coded them dichotomously. Geographic characteristics such as urbanicity and region were either rarely reported or difficult to synthesize together, leading to a broad dichotomous comparison between U.S. and countries outside the U.S. Learning modality was coded as online when there was an indicator of a substantive online component such as an online, blended, or hybrid course. We inferred that studies that did not mention an online component to be in-person; thus, we used a dichotomous variable of online versus in-person.

Third, for student characteristics, we coded age, gender, race/ethnicity, socioeconomic status, and major and academic status. Students' socioeconomic status and major/academic status were hardly provided in the primary studies, but age (sample mean age) and percentages of gender (sample percentage of female students) and race/ethnicity (sample percentage of Students of Color, e.g., Asian, Asian-American, African-American/Black, Hispanic, Latina/o/x, Native American/Indigenous) were captured in our study as continuous variables.

Figure 1
PRISMA Diagram of Information Retrieval Flow

Fourth, for help-seeking variables, we noted the type of help-seeking, both the source (formal, informal) and the help-seeking goal (instrumental, expedient, avoidant) and help-seeking attitudes. While coding help-seeking variables, we recognized that many studies used general help-seeking measures that simply captured students' need-contingent help but did not specify a goal/approach. Some of these general help-seeking measures specified the source of help-seeking as formal or informal. Formal help-seeking included help from instructors and/or academic support centers, and informal help-seeking included help from peers, family, and/or the internet. In contrast to general help-seeking measures, help-seeking goals were often distinguished by the type of help-seeking measure, which included subscales tapping instrumental, expedient, or avoidant help-seeking based on definitions in the literature. Some studies measured adaptive or maladaptive types of help-seeking which were re-coded as either instrumental or avoidant depending on construct operationalization and item content. Fifth, for the academic achievement variable, we distinguished outcomes as either grade point average (GPA: cumulative or semester/year), course grades (end of course grades), and test scores (standardized and unstandardized). These outcomes were dummy-coded so that GPA served as the reference group.

There were three instances when we uncovered three studies with both unpublished dissertation versions and published articles versions (Kumrow, 2007; Lynch & Dembo, 2004; Sun et al., 2018). In these cases, we coded the published article version but consulted the dissertation version if there was any missing information from the article.

Data Analysis: Effect Size Calculation, Power Analysis, and Data Integration

To combine findings from a varied set of studies, effect sizes were computed for each study as a Pearson's r correlation. If a correlation was unavailable, but means and standard deviations were provided, we derived a correlational effect size using appropriate effect size conversion formulae (Cooper et al., 2019). For instance, a study may have provided means and standard deviations of help-seeking for a low achieving group and a high achieving group; in this case, a standardized mean difference can be easily converted to a correlation. This technique was used for five effect sizes (2.1% of the 238 total effect sizes). Next, all effect sizes were corrected by applying a Fisher's z transformation (to account for sample size bias), and then converted back to Pearson's r after analyses were conducted. All analyses were conducted using the *R* packages *metafor* (Viechtbauer, 2010) and *clubSandwich* (Pustejovsky, 2020).

Calculating Average Effect Sizes

After deriving effect size estimates, average effect sizes were aggregated together using an intercept-only, random-effects meta-regression model (Borenstein et al., 2021). A weighting procedure was used to calculate average effect sizes across independent samples. Each effect size was multiplied by the inverse of its variance; then, the sum of these products was divided by the sum of their inverses. This procedure gives more weight to samples of larger size, as larger samples give more precise population estimates. In addition, we present 95% confidence intervals for weighted average effect sizes; if the interval did not contain zero, the null hypothesis was rejected. We also included 95% prediction intervals (see Borenstein et al., 2017), or the range the effect size will fall in for a given population, drawing from the universe of studies.

Identifying Independent Hypothesis Tests

When calculating effect sizes, determining whether an effect size is independent (participants in one sample providing the observations do not overlap with another sample) can be problematic when there are multiple effect sizes from a single sample (i.e., multiple levels of potential moderators). Therefore, we used robust variance estimation (RVE;

Hedges et al., 2010). This approach produces more valid standard errors, point estimates, confidence intervals, and significance tests when effect sizes are non-independent. Without such an approach to correct effect size dependencies, variance estimates can be artificially reduced, and Type I error can be inflated. For our analyses, the correlation between the dependent effect sizes was assumed to be equal to .80 (Tanner-Smith & Tipton, 2014).

Heterogeneity and Moderator Analyses

Effect sizes may vary even if they estimate the same underlying population value. To measure heterogeneity, we used the following metrics: Cochran's Q, I^2, τ^2, and σ^2. First, based on the deviation of the study's observed effect from the summary effect, weighted by the inverse variance, Cochran's Q distinguishes between study heterogeneity from studies' sampling error. Second, based on Cochran's Q, I^2 represents the percentage of effect size variability not caused by sampling error. It is calculated as the ratio of the observed value of Q and the assumed value of Q when there is no heterogeneity. Third, τ^2 quantifies the standard deviation of the distribution of true effect sizes and was estimated in the present study using the DerSimonian-Laird estimator. Given that effect sizes can be nested within study samples, we also calculated σ^2 to represent effect variance at both the study (σ_1^2) and the effect size level (σ_2^2).

When effect sizes significantly vary from each other and produce heterogeneity in the distributions of effects, moderators can be assessed to systematically explain such variation. Thus, meta-regression was employed to assess the influence of moderators within a moderator category. Instead of entering a single predictor (moderator variable) into the meta-regression model, moderators were grouped together in categories and entered together into a single meta-regression to control for potentially confounding variables or covariates (Tipton et al., 2019). Moreover, this approach reduces the overall number of moderator tests and thereby reduces the family-wise Type I error rate (Polanin & Pigott, 2015). We categorized moderators into four models: a) study characteristics (Model A): year, publication status (unpublished vs. published); b) setting characteristics (Model B): college type (two-year vs. four-year institution), country (U.S. vs. non-U.S.), setting (in-person vs. online learning); c) sample characteristics (Model C): percentage of female students, percentage of Students of Color, age (mean years of age); d) outcome characteristics (Model D): outcome type (GPA [reference group] vs. grades vs. test scores) and domain (domain general vs. domain specific).

We interpreted the standardized meta-regression coefficients (change in standard deviation units) for each moderator, controlling for other covariates within each model. In addition to RVE's capability to reduce type I error, significance testing for these coefficients relies on a t-distribution with $k - p$ degrees of freedom, which contains type I error better than standard methods. Although it may be preferable to include all the predictors together into a single meta-regression model, there can be an increased risk of inflating type II error because of limited sample sizes when conducting moderator analyses. Additionally, in light of power-related issues within meta-regression, we only ran moderator analyses if the sample size was at least 20 studies (see Higgins et al., 2021; Huizenga et al., 2011).

Publication Bias

There are a few ways to detect publication bias in meta-analysis (Rodgers & Pustejovsky, 2021), but very few of these techniques adequately account for dependent effect sizes. Using our multivariate model with robust variance estimation, we were able to compare published and unpublished studies as a moderator in a meta-regression

model to evaluate a broad distinction between these two types of studies. However, a more precise test is Egger's regression test (Egger et al., 1997), which regresses a normalized effect size estimate (i.e., effect size divided by standard error) on the precisions, or the reciprocal of the standard error, to detect possible asymmetry in a funnel plot. Egger's regression tests were conducted within the multivariate model that accounts for effect size dependency.

Power Analyses

Because one of the goals of meta-analysis is to achieve higher statistical power than any single one of its included studies, it is important to consider if there is an adequately large collection of studies to reach a reasonable probability of detecting meaningful effect sizes (Valentine et al., 2010). Power analysis for meta-analysis requires a number of assumptions including the critical value of the test, a substantively important value for the effect size, the number of included studies, the typical sample size of an included study, and the amount of between-study variance or heterogeneity (Hedges & Pigott, 2001). For the present study, we assumed a standard alpha level of .05 and conservative sample sizes for both the sample size of participants for an included study ($n = 80$ students; see Guenther, 1977) and the number of included studies for each main meta-analytic analysis ($k = 10$ studies; see Higgins et al., 2021). With these values, we calculated the estimated power for a range of important correlational effect sizes (.10 to .50) for three levels of heterogeneity: low ($I^2 = 25\%$), moderate ($I^2 = 50\%$), and high ($I^2 = 75\%$). Results suggested that sufficient power (.80) can be obtained for r values of .09 with low heterogeneity, .12 with moderate heterogeneity, and .16 with high heterogeneity. A figure depicting these calculations is presented in the supplementary material.

Data Interpretation

Lastly, we describe our approach to interpreting the magnitude of our meta-analytic findings. As traditional guidelines such as those proposed by Cohen (1988) have been criticized as being decontextualized and overly stringent. A recent methodological article by Funder and Ozer (2020) provided guidance for evaluating effect sizes in psychological research. Drawing from work by Abelson's (1985) demonstration of the long-term consequences of effect sizes, they proposed cut-offs that reflect explanatory and practical use in both the short and long run. Under the assumption that even small effects of students' help-seeking tendencies may accumulate over time to lead to important implications, we adopted their suggested guidelines: (a) effect-size r of .05 is considered very small for the explanation of single events but potentially consequential in the not-very-long run; (b) r of .10 is still small for single events but potentially more ultimately consequential than rs of .05; (c) and effect size r of .20 is a medium effect size with some practical and explanatory use in the short and long run. Before using this interpretative approach, Funder and Ozer cautioned that estimates should be precisely and reliably estimated but also stated that meta-analyzed effects can provide a reasonable degree of confidence of useful estimation. In addition, we also compare our main findings to prior meta-analytic work on similar topics to provide an additional framework for interpretation.

Results

Our final pool of studies that met our inclusion criteria included 108 studies spanning 1991 to 2019 ($N = 37,941$ students). We extracted 238 effect sizes from 119 unique postsecondary student samples on seven types of help-seeking. Table 1 presents characteristics of the included studies. Over half of the included studies were peer-reviewed journal

articles, and over one-third were doctoral dissertations. The remaining handful of studies came from book chapters and reports. In terms of publication year, we observed a trend that the number of studies on postsecondary help-seeking and achievement from the 1990s to the 2010s doubled every decade. The majority of studies were conducted on samples attending four-year institutions and originating from the U.S., but almost one-quarter of studies used samples outside of the U.S. These non-US countries/regions included Australia, Canada, China, Denmark, East Africa, India, Ireland, Malaysia, Netherlands, Romania, South Africa, Slovenia, Spain, Oman, Taiwan, and Turkey. For additional characteristics and effect sizes of all the included studies, please see the online supplementary material.

Table 1
Characteristics of Included Studies

	k	%
Publication type		
Peer-reviewed journal article	63	58.33%
Doctoral dissertation	40	37.04%
Book Chapter	2	1.85%
Report	3	2.78%
Publication year		
1990s	14	12.98%
2000s	31	28.70%
2010s	63	58.33%
Type of Institution		
Four-year college	90	83.33%
Two-year college	16	14.81%
"NR"	2	1.85%
Country of Origin		
U.S.	74	68.52%
Non-U.S.	26	24.07%
"NR"	8	7.41%

Note. NR = not reported

Overall Results

Table 2 presents the meta-analytic results. The largest proportion of effect sizes measured associations between general help-seeking and academic outcomes. Most of these studies measured general help-seeking with the MSLQ. The weighted average effect size for general help-seeking and academic outcomes was statistically significant. According to guidance from Funder and Ozer (2020), this effect size was very small but could be potentially meaningful in the not-very-long-run.

To further probe help-seeking sources, we separated effect sizes within the set of general help-seeking effect sizes that specified whether help-seeking was directed toward a formal or informal source. For informal help-seeking, the weighted average correlation was not statistically significant, suggesting a nearly uncorrelated relationship between informal help-seeking and achievement. In contrast, the weighted average correlation between achievement and formal help-seeking was sig-

nificant and would be considered between small and medium but potentially more consequential in the long run than the average effect size for general help-seeking. To further test the difference between associations with achievement and formal and informal help-seeking, we conducted a meta-regression assessing this contrast. Results indicated that compared to formal help-seeking, informal help-seeking was significantly less correlated with academic outcomes ($\beta = -.16$, $SE = .04$, $p = .016$).

Next, we meta-analyzed correlations representing the type of help-seeking, specifically, instrumental, avoidant, and executive (or expedient) help-seeking. The average weighted correlation for instrumental help-seeking and achievement was significant and small to medium in magnitude. Meta-analytic findings revealed that achievement was negatively and significantly correlated with the two forms of nonadaptive help-seeking. While the magnitude of the association between avoidant help-seeking and achievement was small to medium, the executive help-seeking and achievement relationship was small.

Lastly, we examined the correlations between achievement and two attitudes toward help-seeking: threat and benefit. For help-seeking threat, there was a negative and significant correlation with academic achievement; the average weighted effect was very small. Achievement and the perception of help-seeking benefit was positively but not significantly correlated, but this average weighted effect size was based on only two samples. Although a few main analyses relied on small sample sizes of studies, the majority had higher than 10 studies and were aligned with our power calculations.

Heterogeneity of Effect Sizes and Moderator Analyses

For nearly all the main analyses, Cochran's Q statistics were significant, indicating evidence of significant heterogeneity within the distributions of effect sizes. Moreover, most of the I^2 values were above .75 (or 75%), suggesting a fairly high degree of heterogeneity as well. Although variance statistics such as τ^2 or σ^2 tend to be difficult to interpret, heterogeneity was identified at both the study (σ_1^2) and the effect size level (σ_2^2). This variation is further justification for our use of robust variance estimation to account for effect size dependency and how effect sizes may vary within studies.

Using meta-regression to examine categories of moderators to account for additional variance explained by related predictors, we present the moderator results for general help-seeking, instrumental help-seeking, and avoidant help-seeking in Table 3 (other effect size distributions for help-seeking variables and achievement had too few studies). Many of the moderator analyses were non-significant with a few exceptions. For instance, the type of achievement outcome (GPA vs. test scores) significantly moderated the relationship between instrumental help-seeking and academic achievement, while controlling for other covariates in Model D (as suggested by the negative and significant meta-regression coefficient). Specifically, correlations with help-seeking were significantly smaller when achievement was measured by test scores ($r = .10$, $SE = .07$, $p = .186$; $k = 8$) than when measured by GPA ($r = .13$, $SE = .04$, $p = .005$; $k = 13$). In other words, the relationship between instrumental help-seeking and academic performance was larger for GPA outcomes compared with when test scores were the outcome. Another moderator of the instrumental help-seeking-academic achievement association was country of origin, controlling for other predictors in Model B. Specifically, studies from countries outside of the U.S. had larger (positive) correlations between instrumental help-seeking and academic achievement ($r = .40$, $SE = .08$, $p = .041$; $k = 3$), compared to studies with U.S.-based samples ($r = .08$, $SE = .02$, $p = .004$; $k = 21$).

Table 2
Results of Overall Analyses Examining Correlations Between Help-Seeking and Achievement

Construct	No. of effects	k	r	SE	95% CI	95% PI	Q	I^2	σ_1^2	σ_2^2	τ^2
General Help-Seeking & Sources											
Help-Seeking (General)	134	94	.06***	.01	[.03, .08]	[-.01, .26]	659.37	.86	.07	.07	.005
Formal	12	10	.12*	.05	[.01, .22]	[-.22, .45]	122.41	.93	.14	.02	.03
Informal	14	7	.01	.04	[-.08, .10]	[-.24, .27]	95.91	.94	.07	.09	.003
Help-Seeking Tendencies											
Avoidant	34	29	-.18***	.02	[-.21, -.14]	[-.33, -.02]	129.65	.78	.001	.07	.03
Instrumental	28	24	.11***	.03	[.05, .18]	[-.16, .39]	179.38	.87	.001	.13	.02
Executive	17	14	-.10**	.02	[-.15, -.05]	[-.24, .05]	48.91	.73	.001	.07	.01
Help-Seeking Attitudes											
Threat	18	15	-.05*	.03	[-.11, -.001]	[-.27, .16]	122.62	.89	.001	.10	.001
Benefit	3	2	.11	.19	[-.71, .94]	[-1.20, 1.43]	5.91 n.s.	.83	.23	.07	.29

Note. *p < .05; **p < .01; ***p < .001. 95% CI = 95% confidence intervals; 95% PI = 95% prediction intervals. All Q statistic value were significant at p < .001, unless noted with n.s. (not significant).

Note that the result was based on only three studies conducted in a non-U.S. setting. Lastly, for the association between avoidant help-seeking and academic achievement, publication year was a significant moderator when controlling for the additional covariate in Model A. This small moderating effect indicated that more recent studies have larger correlations, or more negative associations between avoidant help-seeking and academic achievement.

Publication Bias Tests

We examined publication bias in two ways that accounted for dependent effect sizes. First, as discussed previously, we conducted a broad comparison of published, peer-reviewed journal articles versus unpublished reports as a moderator in our meta-regression models (see Chow & Ekholm, 2018). This moderator analysis did not yield any significant differences between published and unpublished studies (ps > .05). To present further the differences between findings from published and unpublished studies, we provide separate meta-analytic findings for

published and unpublished studies in the supplementary material. Second, a series of non-significant Egger's regressions tests (see Table 4), also conducted using the same multivariate meta-regression model as the main analyses, revealed a lack of asymmetry of the funnel plots (ps > .05), suggesting minimal evidence for publication bias as well.

Discussion

Learning is rarely a completely asocial experience but rather situated in a sociocultural environment (Nelson-Le Gall, 1985). When academic difficulty arises, help-seeking becomes an important self-regulated behavior as college students manage their learning resources and navigate their learning environment. However, many disparate studies have documented mixed findings regarding associations between help-seeking and achievement. Using meta-analysis to bring together all the studies on this topic, we conducted the first comprehensive synthesis of

Table 3
Moderator Results

Models and predictors	General β (SE)	General df	General 95% CI	Avoidant β (SE)	Avoidant df	Avoidant 95% CI	Instrumental β (SE)	Instrumental df	Instrumental 95% CI
Model A: Study Characteristics									
Year of Publication[1]	.001 (.002)	23.21	[-.002, .01]	.006* (.002)	11.50	[.001, .01]	.007 (.01)	8.08	[-.001, .02]
Publication Type	-.01 (.03)	58.11	[-.06, .04]	.06 (.03)	15.51	[-.01, .13]	.08 (.05)	12.77	[-.04, .21]
Model B: Setting Characteristics									
College Type	-.01 (.05)	12.48	[-.09, .08]	.08 (.05)	11.04	[-.01, .16]	.06 (.04)	12.64	[-.05, .16]
Country	.01 (.03)	43.07	[-.05, .07]	-.04 (.05)	4.34	[-.14, .06]	.30* (.08)	2.90	[.15, .46]
Learning Modality	.03 (.04)	17.64	[-.03, .09]	.04 (.05)	1.39	[-.09, .16]	.11 (.14)	1.41	[-.06, .28]
Model C: Sample Characteristics									
Sample % of Women[1]	.13 (.13)	3.07	[-.12, .38]	.05 (.17)	1.90	[-.28, .37]	-.17 (.07)	2.05	[-.64, .30]
Sample % of Students of Color[1]	.10 (.08)	5.91	[-.07, .27]	-.003 (.09)	6.60	[-.19, .19]	-.14 (.19)	2.73	[-.56, .28]
Age[1]	-.002 (.01)	3.06	[-.01, .01]	-.01 (.01)	1.96	[-.04, .01]	.004 (.03)	2.74	[-.06, .06]
Model D: Outcome Characteristics									
Outcome: Grades (ref: GPA)	.04 (.02)	22.91	[-.01, .08]	-.001 (.05)	3.88	[-.12, .11]	-.11 (.12)	5.42	[-.29, .08]
Outcome: Test scores (ref: GPA)	-.03 (.03)	16.20	[-.08, .03]	.02 (.06)	11.35	[-.07, .11]	-.17* (.05)	2.46	[-.27, -.07]
Domain Specificity	-.01 (.03)	49.33	[-.06, .05]	.04 (.05)	5.92	[-.08, .15]	.15 (.16)	4.69	[-.06, .35]

Note. *p < .05; Degrees of freedom (df) were estimated with RVE. [1] Moderators were coded as continuous variables. Other variables were dichotomous or categorical (dummy-coded). Publication type: 0 = unpublished, 1 = published; College type: 0 = two-year institution, 1 = four-year institution; Country: 0 = U.S., 1 = non-U.S.; Learning modality: 0 = in-person, 1 = online; Outcome: 0 = GPA (reference), 1 = Grades, 2 = Test scores); Domain specificity: 0 = domain-general, 1 = domain-specific.

over 100 studies examining linkages between postsecondary academic achievement and help-seeking tendencies, sources, goals, and attitudes among postsecondary students. In the subsequent sections, we discuss the overall findings of our meta-analysis, moderating effects, implications for education, limitations, and future directions for research.

Table 4
Egger's Regression Test Results

	β	SE	95% CI
General Help-Seeking	2.77	1.73	[-.66, 6.20]
Formal Help-Seeking	-5.83	19.72	[-49.77, 38.11]
Informal Help-Seeking	10.12	11.53	[-15.01, 32.24]
Avoidant Help-Seeking	-0.14	4.46	[-9.21, 8.94]
Instrumental Help-Seeking	0.69	5.32	[-10.24, 11.62]
Executive Help-Seeking	6.24	4.33	[-2.99, 15.46]
Help-Seeking Threat	8.16	8.59	[-10.05, 26.38]
Help-Seeking Benefit	20.87	11.54	[-125.80, 167.54]

Note. 95% confidence intervals containing zero indicates a nonsignificant result.

Overall Meta-Analytic Findings

First, the results of this research provide supporting evidence that general help-seeking (no goal specified) was significantly and positively associated with college student academic achievement. However, this association was very small according to a range of standards. While these results are consistent with the claim that help-seeking is a beneficial self-regulatory strategy (e.g., Karabenick & Newman, 2013), they are qualified by a relatively modest magnitude of the weighted average association. Based on 94 samples, the size of the correlation was consistent with Credé and Philipps's (2011) meta-analysis on the MSLQ; based on 15 samples, they found an average, observed correlation of r = .05. However, help-seeking correlations were noticeably higher in the Richardson et al. (2012) meta-analysis based on eight samples (r = .15). But given the smaller sample sizes of studies for their meta-analysis, our findings imply that help-seeking tendencies when measured without specifying a help-seeking goal might be less influential on academic achievement than previously thought.

One possible interpretation for this small effect size is the hypothesized curvilinear relationship between help-seeking and academic achievement, so that even with the awareness of need-contingent help, students on the extreme ends of the prior achievement continuum (high or low achievement) may be reluctant to seek out academic assistance (Karabenick & Knapp, 1991). Moreover, help-seeking, unlike other self-regulatory strategies, is inextricably linked to the social interactions with and perceptions of various learning agents in the classroom and on college campuses and unfortunately imbued with social stigma (Karabenick & Gonida, 2018). These psychosocial factors may complicate the consistency and potency of help-seeking's influence on academic performance.

From a theoretical perspective, the inherently social nature of help-seeking challenges many of the dominant theories of self-regulated learning and their less pronounced focus on the social context. Although our synthesis, like many other studies on help-seeking, was situated within a social-cognitive framework and Zimmerman's (2000) model of self-regulated learning, help-seeking research could benefit from more socially-based models of self-regulation. While Zimmerman's model is based on the triadic reciprocity of environment, person, and

behavior, scholars have argued that aspects of Zimmerman's model lack more specific acknowledgement of the context (i.e., Panadero, 2017). To significantly place the role of context when theorizing help-seeking processes, models such as the Social Shared Regulated Learning (Järvelä & Hadwin, 2013) could be incorporated as they emphasize how different external sources (i.e., peers and instructors) can promote individual self-regulation (see Ryan & Shin, 2011). Moreover, given the rise of help sought in digital and virtual learning environments, social interaction need not be limited to the presence of human agents but also non-personal sources (e.g., computer-based intelligent tutoring systems) and their social influence in digital or virtual learning contexts (Karabenick & Puustinen, 2013; Makara & Karabenick, 2013).

Another explanation for the modest relationship between general help-seeking and academic achievement is the lack of specificity used when measuring help-seeking. General measures of help-seeking such as the MSLQ not only 1) combine items tapping various help-seeking sources (formal and informal) but also 2) neglect the help-seeking goal (instrumental or executive). First, after separating the studies that distinguished help-seeking sources, it was interesting to observe how formal help-seeking had a significantly larger correlation than informal help-seeking. This result is aligned with Kitsantas and Chow (2007)'s work that corroborates the benefit of seeking help from more formal sources. In fact, the association between informal help-seeking and academic achievement was not significantly different from zero. Although based on a smaller number of samples, the nonsignificant association between informal help-seeking and achievement is particularly troubling given the well-documented finding that college students preferred and sought assistance from their peers or other electronic/digital resources (Knapp & Karabenick, 1988).

Second, our results imply that the goals students have when seeking academic help are paramount when influencing students' academic achievement. Because general help-seeking measures do not capture students' approach or quality of help-seeking, measures such as those derived by Karabenick (2003) provide additional nuance for *how* students seek out help. We obtained evidence that instrumental help-seeking was moderately and positively associated with academic achievement, whereas executive help-seeking was a negative correlate along with avoidant help-seeking. Taken together, our findings suggest that compared to instrumental help-seekers, students avoiding help-seeking had the worst academic performance, followed by students who sought ready-made solutions from another person (executive help-seeking). Thus, an important clarification is needed: although our main finding was that general help-seeking had a small but positive association with achievement, the quality of the help-seeking matters, making the difference between reducing or enhancing students' academic performance. From a theoretical perspective, although this pattern of results is consistent with the foundational conceptualization of help-seeking goals (Nelson-Le Gall, 1985) and more contemporary studies (e.g., White & Bembenutty, 2013), we encourage greater attention to how help-seeking is conceived in self-regulated learning models. Rather than treated monolithically as a unidimensional, self-regulated strategy, help-seeking's adaptive and nonadaptive forms are necessary distinctions to make in the field of educational psychology. This level of nuance is even more important as many of the commonplace measures of self-regulated learning neglect these dimensions (e.g., MSLQ, Pintrich et al., 1993; Learning and Study Strategies Inventory, Weinstein et al., 1987; Academic Self-Regulation Scale, Magno, 2010).

Findings from Moderator Analyses

Although many moderator analyses were not significant, two results merit comment regarding the association between instrumental

help-seeking and college student performance. First, it was interesting that instrumental help-seeking was more strongly associated with GPA as an outcome compared to test scores (no differences with course grade outcomes). One interpretation of this finding is that tests (particularly in-class exams) have comparatively less help-seeking opportunities than GPA outcomes which may consist of course assignments and projects in addition to exams. These additional course-related tasks over a longer period of time may be more conducive for help-seeking to occur. Therefore, it may be important to consider how examinations are used to assess learning if help-seeking is to be fostered. Unplanned quizzes and standardized, high stakes examinations, for instance, would not necessarily foster instrumental help-seeking from students and might thereby be undesirable as outcomes and motivators for help-seeking.

Second, moderator analyses revealed that correlations between instrumental help-seeking and college student achievement were stronger for non-U.S. samples than U.S. samples. Although there were only a few non-U.S. studies with which to compare, it was notable to consider how cultural/national context might influence the role of instrumental help-seeking on academic performance. Prior studies have explored the idea of collectivism and interdependence as contextual precursors to help-seeking (Karabenick & Newman, 2013; Sandoval & Lee, 2006; Zusho & Barnett, 2011), especially with regards to cultures originating from regions outside of the U.S. Because students' levels of interdependence were not explicitly measured in this synthesis, we encourage further inquiry into how collectivistic beliefs might be associated with more instrumentally-focused help-seeking tendencies (see Sheu et al., 2020). Although publication year significantly moderated the relationship between avoidant help-seeking and achievement, it was not evident what may explain this finding.

Methodological Issues in the Help-Seeking Literature

We examined several methodological issues in the help-seeking literature. The first was the presence of publication bias, which seemed unlikely based on nonsignificant comparisons of weighted average correlations from published studies versus unpublished studies. Moreover, a more precise measure using Egger's regression tests controlling for dependent effect sizes also corroborated this result. Therefore, we found limited evidence of selection bias in the help-seeking and academic achievement literature.

Another methodological concern is the internal consistency of help-seeking measures. Based on the subsample of studies that provided reliability information, effect sizes mainly derived from the MSLQ were consistently low and mirrored the Cronbach's alpha values from the original validation study of the help-seeking scale (Pintrich et al., 1993). While correction procedures exist to estimate an unattenuated effect size, we opted to not proceed with this step given the low frequency of studies providing reliability values. Furthermore, corrected estimates would be larger overall (either more positive or negative) than the raw weighted correlations reported in this study, further highlighting the benefit of adaptive help-seeking for academic achievement.

Implications for Educational Practice

For educators, a misguided interpretation of the help-seeking literature is to place the onus solely on the student to employ this self-regulatory strategy. Although the heart of help-seeking is the volitional control within the student to respond actively to one's need for assistance, there are many instructional and institutional approaches that can facilitate students' help-seeking tendencies. Because the act of need-contingent help-seeking (with the goal unspecified) is only modestly related to academic performance, reducing avoidant help-seeking and emphasizing an instrumental goal is paramount for students. As instrumental

help-seeking is closely tied to mastery goal orientation (Fong et al., 2018; Karabenick, 2004) and thereby mastery goal structures (see Bardach et al., 2020), one educational implication is for instructors to foster a mastery-oriented environment in their classrooms. When instructors focus on student learning of the material and improvement with the goal of developing students' competence (Patrick et al., 2011), it follows that students will internalize their own personal mastery approach goals (Meece et al., 2006), which, in turn, can elicit instrumental help-seeking (e.g., Karabenick, 2004). We want to emphasize that mastery-oriented environments or mastery goal structures are not necessarily dependent on increased testing, but rather prioritizing student's efforts to improve and deeper understanding of the academic content (e.g., Koskey et al., 2010).

On a related note, to curb students' expedient help-seeking, instructor messaging and dialogue between students and help-seeking sources can encourage students' critical thinking and engagement with an active help-seeking process (e.g., Schworm & Gruber, 2012). For instance, establishing a help-seeking culture that discourages brief question and answer exchanges and invites extended periods of scaffolding might be fruitful. Emphasizing productive persistence and investing effort into the help-seeking process might promote students' mastery-oriented learning. Autonomy-supportive practices that include providing encouragement and hints (rather than direct solutions; Reeve & Jang, 2006) may also deter expedient forms of help-seeking and encourage more instrumental goals (Butler, 1998; Marchand & Skinner, 2007). In college classrooms, Karabenick and Sharma (1994) found that perceived teacher support increased the frequency of student questioning and self-regulated strategies. As formal help-seeking (with instructors) was more strongly linked with instrumental than executive help-seeking (Karabenick, 2003), messaging for an instrumental help-seeking culture is important to also positively shape informal help-seeking strategies that are more common among college students. Moreover, the overall rules and norms within a college classroom about class participation, completing assignments, and social interactions can be critical contextual determinants of academic help-seeking (Ryan et al., 2001).

Based on our moderator results indicating that instrumental help-seeking was potentially more influential for college students' academic performance when measured by GPA (versus test scores) and in non-U.S. countries, we suggest two implications. First, because instrumental help-seeking and test scores were less correlated with each other, it may be important to consider a range of assessment types for students, particularly when encouraging instrumental help-seeking. Long-term assignments, project-based learning tasks, or "take-home" examinations that allow for greater help-seeking opportunities could be beneficial. Second, as instrumental help-seeking was more highly correlated with achievement for non-U.S. students, features of the cultural and social context might be an important consideration. Understanding students' cultural and sociohistoric backgrounds may be useful for raising awareness of any culturally-related factors associated with help-seeking.

Study Limitations and Future Directions

Our synthesis had several limitations. First, we want to acknowledge that we meta-analyzed correlational data, and while we were able to identify small to moderate associations between variables, causal inferences should not be assumed. Moreover, reciprocal relations between help-seeking and achievement were not assessed given the inclusion of mostly cross-sectional survey studies; although we assumed based on prior studies and theory that help-seeking would influence academic achievement, a bidirectional relationship is a clear possibility.

Second, as most meta-analyses are limited by the information reported in primary studies, we were hindered by a lack of information

provided by primary study authors to execute robustly the kind of moderator analyses we had set forth. Moreover, our moderator tests were primarily exploratory and consisted of between-study analyses; therefore, we encourage future studies focused on a more systematic examination of moderators of help-seeking and achievement relationships. Additionally, future investigations may wish to consider moderating variables important for postsecondary student achievement and help-seeking such as generation status (first generation vs. continuing generation), socioeconomic status, and enrollment status (part-time vs. full-time). That being said, the inclusion of other moderator variables in future research should be balanced with the number of studies available for meta-regression. Another limitation of the current synthesis was the small number of studies that precluded the placement of all moderators of interest in adequately powered meta-regression models, recommended by Tipton et al. (2019).

Third, we limited the scope of our synthesis to postsecondary students and self-reported help-seeking perceptions. Although our synthesis was still relatively large, we wanted to note the plethora of additional studies that focus on K-12 settings ripe for future meta-analytic work to uncover aspects of the help-seeking process for students in earlier grade levels. In addition, our initial search uncovered studies with behavioral measures of help-seeking, including visits to office hours or tutoring sessions and computer-mediated assistance through a learning management system. While these behavioral measures have advantages, from a synthesis perspective, these measures complicate how comprehensive and coherent our study's scope would be; expanding the focus from help-seeking perceptions to the effectiveness of every imaginable campus resource or agent as it relates to academic achievement would be untenable. Thus, limiting our focus to self-reported help-seeking measures--specifically, need-contingent help-seeking--became a necessary step for our synthesis. That being said, we recommend scholars consider both instructor-report measures and other behavioral indicators to further explore help-seeking measurement and processes. Moreover, future scholarship focused on domain-specific help-seeking strategies may also be fruitful and provide nuanced insight beyond general-domain help-seeking strategies (Dumas, 2020), which were the primary focus in this synthesis.

Fourth, additional scholarship is needed to unpack further the relationships between academic performance and both help-seeking attitudes (benefit and threat) as well as source (formal and informal). Our systematic search only revealed a handful of studies examining these help-seeking constructs. While initial results from these small samples were aligned with work from prior studies, we call for a more robust evaluation of the predictive validity of these help-seeking constructs.

Last, we acknowledge that our meta-analysis was relatively simplistic in that we analyzed bivariate relationships between help-seeking variables and achievement. Although this relation is an important linkage to understand within models of self-regulation, other self-regulatory aspects such as planning, monitoring, and appraisal and motivational aspects such as goal orientation can be incorporated into a more complex and comprehensive analysis. Future research syntheses may elect to use meta-analytic structural equation modeling (metaSEM) to examine these additional factors. Nevertheless, the current synthesis sheds light on an important bivariate relationship in the field of educational psychology.

Conclusion

Compared to most self-regulated strategies, help-seeking is inherently social in nature and thus elicits an additional level of complexity when understanding its benefits for student learning. Taking into consideration some of the psychosocial dynamics involved in seeking out

academic assistance, our overall findings suggest that need-contingent help-seeking is a potentially influential strategy to employ, particularly when the goal for help-seeking is to master the material. Seeking help just to receive an expedient solution was counterproductive, and unsurprisingly, avoiding help altogether was also negatively linked with academic performance. The way students seek help is a salient aspect, whether as instrumental help-seeking or in other non-adaptive ways. Our study is significant because it explains how studies that do not measure the quality of the help-seeking behavior but simply the frequency or degree of help-seeking may underestimate the benefit of this motivated, self-regulated strategy. Understanding the more adaptive ways to seek out help, instructors and institutions can be poised to develop appropriate help systems and encourage more instrumental ways of help-seeking among their students in need of academic assistance.

References

*References marked with an asterisk indicate studies included in the meta-analysis.

Abelson, R. P. (1985). A variance explanation paradox: When a little is a lot. *Psychological Bulletin*, *97*(1), 129-133. https://doi.org/10.1037/0033-2909.97.1.129

*Adkins, S. J. (2006). *The relations of self -regulated learning to public speaking anxiety and achievement* [Unpublished doctoral dissertation]. University of Houston.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Alexitch, L. R. (1997). Students' educational orientation and preferences for advising from university professors. *Journal of College Student Development*, *38*(4), 333-343.

*Alexitch, L. R. (2002). The role of help-seeking attitudes and tendencies in students' preferences for academic advising. *Journal of College Student Development*, *43*(1), 1-15.

Alexitch, L. R. (2006). Academic advising in higher education. In S. Karabenick & R. Newman (Eds.), *Help seeking in academic setting: Goals, groups, and contexts*, (pp. 175-202). Lawrence Erlbaum.

*Alkhausi, H. A., Al-Yahmadi, H., Al-Kalbani, M., Clayton, D., Al-Barwani, T., Al-Sulaimani, H., ... & Khan, M. A. (2015). Predictors of first-year Sultan Qaboos university students' grade point average. *Journal of Education and Practice*, *6*(12), 121-127.

Ames, R., & Lau, S. (1982). An attributional analysis of student help-seeking in academic settings. *Journal of Educational Psychology*, *74*(3), 414-423. https://doi.org/10.1037/0022-0663.74.3.414

*Artino, A. R., Jr., Dong, T., DeZee, K. J., Gilliland, W. R., Waechter, D. M., Cruess, D., & Durning, S. J. (2012). Achievement goal structures and self-regulated learning: Relationships and changes in medical school. *Academic Medicine,* *87*(10), 1375-1381. https://doi.org/10.1097/ACM.0b013e3182676b55

*Artino, A. R., Jr., Hemmer, P. A., & Durning, S. J. (2011). Using self-regulated learning theory to understand the beliefs, emotions, and behaviors of struggling medical students. *Academic Medicine,* *86*(10), 35-38. https://doi.org/10.1097/ACM.0b013e31822a603d

*Astatke, M. (2018). First-year college students' emotional intelligence and help-seeking behaviours as correlates of their academic achievement. *Journal of Student Affairs in Africa*, *6*(2), 29-50. https://doi.org/10.24085/jsaa.v6i2.2515

*Baldwin, C. A. (2001). *Achievement goals and exam performance: An exploration of the role of study strategies and anticipatory test anxiety* [Unpublished doctoral dissertation]. Indiana State University.

Bandura, A. (1986). *Social foundations of thought and action*. Prentice-Hall, Inc.

Bardach, L., Oczlon, S., Pietschnig, J., & Lüftenegger, M. (2020). Has achievement goal theory been right? A meta-analysis of the relation between goal structures and personal achievement goals. *Journal of Educational Psychology*, *112*(6), 1197-1220. https://doi.org/10.1037/edu0000419

*Bartels, J. M., Magun-Jackson, S., & Ryan, J. J. (2011). Achievement goals, volitional regulation and help-seeking among college students: A multiple goal analysis. *Individual Differences Research, 9*(1), 41-51.

*Bembenutty, H., & White, M. C. (2013). Academic performance and satisfaction with homework completion among college students. *Learning & Individual Differences, 24*, 83-88. https://doi.org/10.1016/j.lindif.2012.10.013

*Bergey, B. W. (2014). *Student-generated questions during chemistry lectures: Patterns, self-appraisals, and relations with motivational beliefs and achievement* [Unpublished doctoral dissertation]. Temple University.

*Betoret, F. D., & Artiga, A. G. (2011). The relationship among student basic need satisfaction, approaches to learning, reporting of avoidance strategies and achievement. *Electronic Journal of Research in Educational Psychology, 9*(2), 463-496.

*Bhattacharyya, S. (2004). *Dynamics of motivation and self-regulation among college pre-service teachers: A cross-cultural perspective* [Unpublished doctoral dissertation]. The University of Memphis.

*Blaylock, T. H., Jr. (2007). *The effects of advisor persona, motivational orientation, and help-seeking on solicited advisement and achievement in multimedia-based learning* [Unpublished doctoral dissertation]. University of South Alabama.

*Blondeau, L., & Awad, G. H. (2017). Sex differences in career guidance of undergraduate math students and the relation to help-seeking behaviors. *Journal of Career Development*, *44*(2), 174-187. https://doi.org/10.1177/08948453

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2021). *Introduction to meta-analysis*. John Wiley & Sons.

Borenstein, M., Higgins, J. P., Hedges, L. V., & Rothstein, H. R. (2017). Basics of meta-analysis: I2 is not an absolute measure of heterogeneity. *Research Synthesis Methods*, *8*(1), 5-18. https://doi.org/10.1002/jrsm.1230

*Brackney, B. E., & Karabenick, S. A. (1995). Psychopathology and academic performance: The role of motivation and learning strategies. *Journal of Counseling Psychology, 42*(4), 456-465. https://doi.org/10.1037/0022-0167.42.4.456

*Broadbent, J. (2017). Comparing online and blended learner's self-regulated learning strategies and academic performance. *The Internet and Higher Education*, *33*, 24-32. https://doi.org/10.1016/j.iheduc.2017.01.004

*Brockman, G. (2007). *What factors influence achievement in remedial mathematics classes* [Unpublished doctoral dissertation]. University of Southern California.

*Brouwer, J., Jansen, E., Flache, A., & Hofman, A. (2016). The impact of social capital on self-efficacy and study success among first-year university students. *Learning and Individual Differences, 52*, 109-118. https://doi.org/10.1016/j.lindif.2016.09.016

*Bryer, L. M. (1992). *Explanatory style and academic performance: A failure to replicate studies indicating an association* [Unpublished master's thesis]. Eastern Michigan University.

Butler, R. (1998). Determinants of help seeking: Relations between perceived reasons for classroom help-avoidance and help-seeking behaviors in an experimental context. *Journal of Educational Psychology*, *90*(4), 630-643. https://doi.org/10.1037/0022-0663.90.4.630

*Byrne, M., Flood, B., & Griffin, J. (2014). Measuring the academic self-efficacy of first-year accounting students. *Accounting Education*, *23*(5), 407-423. doi.org/10.1080/09639284.2014.931240

*Caldwell, T. L. (2010). *Culture counts: Improving non-cognitive assessment for predicting retention and academic success in a sample of African American college students* [Unpublished doctoral dissertation]. Southern Illinois University at Carbondale.

*Cambridge-Williams, T., Winsler, A., Kitsantas, A., & Bernard, E. (2013). University 100 orientation courses and living-learning communities boost academic retention and graduation via enhanced self-efficacy and self-regulated learning. *Journal of College Student Retention: Research, Theory & Practice*, *15*(2), 243-268. doi.org/10.2190/CS.15.2.f

*Campbell, M. M. (2007). Motivational systems theory and the academic performance of college students. *Journal of College Teaching & Learning, 4*(7), 11-24.

*Cazan, A.-M. (2014). Self-regulated learning and academic achievement in the context of online learning environments. *eLearning & Software for Education,* 90-95. https://doi.org/10.12753/2066-026X-14-153

*Cheng, G., & Chau, J. (2013). Exploring the relationship between students' self-regulated learning ability and their ePortfolio achievement. *Internet and Higher Education*, *17*(1), 9-15. dx.doi.org/10.1016/j.iheduc.2012.09.005

Chow, J. C., & Ekholm, E. (2018). Do published studies yield larger effect sizes than unpublished studies in education and special education? A meta-review. *Educational Psychology Review*, *30*(3), 727-744. https://doi.org/10.1007/s10648-018-9437-7

*Chunlin, Y. (2017). A case study on the factors affecting Chinese adult students' English acquisition in a blended learning environment. *International Journal of Continuing Engineering Education & Lifelong Learning,* *27*(1/2), 22-44. https://doi.org/10.1504/IJCEELL.2017.10001970

*Cleary, T. J., Callan, G. L., Malatesta, J., & Adams, T. (2015). Examining the level of convergence among self-regulated learning microanalytic processes, achievement, and a self-report questionnaire. *Journal of Psychoeducational Assessment*, *33*(5), 439-450. https://doi.org/10.1177/0734282915594739

*Clevering, J., DeFord, S., Yamamura, T., & Mashek, D. (2011). Achievement is an attitude: The importance of help-seeking attitudes when predicting academic achievement. In D. Mashek & E. Y. Hammer (Eds.), *Empirical research in teaching and learning: Contributions from social psychology* (Vol. 3, pp. 104-113). Wiley-Blackwell. https://doi.org/10.1002/9781444395341.ch6

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cooper, H., Hedges, L. V., & Valentine, J. C. (Eds.). (2019). *The handbook of research synthesis and meta-analysis* (3rd). Russell Sage Foundation.

*Creason, L. M. (2005). *Relationships among community college developmental reading students' self-regulated learning, Internet self-efficacy, reading ability and achievement in blended/hybrid and traditional classes: A program review* [Unpublished doctoral dissertation]. University of Missouri-Kansas City.

Credé, M., & Kuncel, N. R. (2008). Study habits, skills, and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science*, *3*(6), 425-453.

Credé, M., & Phillips, L. A. (2011). A meta-analytic review of the Motivated Strategies for Learning Questionnaire. *Learning and Individual Differences*, *21*(4), 337-346. https://doi.org/10.1016/j.lindif.2011.03.002

*Davenport, M. A. (2004). *Modeling motivation and learning strategy use in the classroom: An assessment of the factorial, structural, and predictive validity of the motivated strategies for learning questionnaire* [Unpublished doctoral dissertation]. Auburn University.

*Dawson, D. L., Meadows, K. N., & Haffie, T. (2010). The effect of performance feedback on student help-seeking and learning strategy use: Do clickers make a difference? *Canadian Journal for the Scholarship of Teaching and Learning,* *1*(1), 1-23. https://ir.lib.uwo.ca/ctlpub/5

Dent, A. L., & Koenka, A. C. (2016). The relation between self-regulated learning and academic achievement across childhood and adolescence: A meta-analysis. *Educational Psychology Review*, *28*(3), 425-474. https://doi.org/10.1007/s10648-015-9320-8

Dumas, D. (2020). Strategic processing within and across domains of learning. In D.L. Dinsmore, L.K. Fryer, M.M. Parkinson (Eds.), *Handbook of strategies and strategic processing: Conceptualization, intervention, measurement, and analysis* (pp. 11-28). Routledge.

Duncan, T. G., & McKeachie, W. J. (2005). The making of the Motivated Strategies for Learning Questionnaire. *Educational Psychologist*, *40*(2), 117-128. https://doi.org/10.1207/s15326985ep4002_6

*Dunigan, B., & Curry, K. J. (2006). Motivation and learning strategies of students in distance education. *Journal of the Mississippi Academy of Sciences, 51*(2), 140-155.

Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *British Medical Journal*, *315*(7109), 629-634. https://doi.org/10.1136/bmj.315.7109.629

*Ersig-Marcus, C. (2014). *Psychosociocultural predictors of help seeking among latino community college students*[Unpublished doctoral dissertation]. University of Southern California.

*Finney, S. J., Barry, C. L., Horst, S. J., & Johnston, M. M. (2018). Exploring profiles of academic help seeking: A mixture modeling approach. *Learning and Individual Differences, 61*, 158-171. https://doi.org/10.1016/j.lindif.2017.11.011

*Fittrer, P. (2016). *Academic help seeking constructs and group differences: An examination of first-year university students* [Unpublished doctoral dissertation]. University of Nevada, Reno.

*Fong, C. J., Acee, T. W., & Weinstein, C. E. (2018). A person-centered investigation of achievement motivation goals and correlates of community college student achievement and persistence. *Journal of College Student Retention: Research, Theory & Practice, 20*(3), 369-387. https://doi.org/10.1177/1521025116673374

Fong, C. J., Davis, C. W., Kim, Y., Kim, Y. W., Marriott, L., & Kim, S. (2017). Psychosocial factors and community college student success: A meta-analytic investigation. *Review of Educational Research*, *87*(2), 388-424. https://doi.org/10.3102/0034654316653479

Fong, C. J., Zientek, L. R., Ozel, Z. E. Y., & Phelps, J. M. (2015). Between and within ethnic differences in strategic learning: A study of developmental mathematics students. *Social Psychology of Education*, *18*(1), 55-74. https://doi.org/10.1007/s11218-014-9275-5

Funder, D. C., & Ozer, D. J. (2019). Evaluating effect size in psychological research: Sense and nonsense. *Advances in Methods and Practices in Psychological Science*, *2*(2), 156-168. https://doi.org/10.1177/2515245919847202

*Geduld, B. (2016). Exploring differences between self-regulated learning strategies of high and low achievers in open distance learning. *Africa Education Review, 13*(1), 164-181. https://doi.org/10.1080/18146627.2016.1182739

Goldrick-Rab, S. (2010). Challenges and opportunities for improving community college student success. *Review of Educational Research*, *80*(3), 437-469. https://doi.org/10.3102/0034654310370163

*Goodwin, M. E. (2008). *Gender role conflict, depression, and personality's effect on help seeking behaviors, attitudes, and academic performance* [Unpublished doctoral dissertation]. Iowa State University.

*Griffith, S. L. (1998). *The relationship between learning strategies and academic achievement in community college engineering technology students* [Unpublished doctoral dissertation]. University of San Francisco.

Guenther, W. C. (1977). Desk calculation of probabilities for the distribution of the sample correlation coefficient. *The American Statistician*, *31*(1), 45-48.

*Hamid, S., & Singaram, V. S. (2016). Motivated strategies for learning and their association with academic performance of a diverse group of 1st-year medical students. *African Journal of Health Professions Education, 8*(1), 104-107. https://doi.org/10.7196/AJHPE.2016.v8i1.757

*Harris, C. A. (2013). *Learning about sustainable development: An examination of social network practices of first-year engineering students* [Unpublished doctoral dissertation]. Purdue University.

*Hashim, R. A. (2004). Interplay of ESL students' goal orientations, self-beliefs, and attitudinal factors in academic help-seeking behaviors. *Journal of Social Science & Humanities, 12*, 21-29.

Hedges, L. V., & Pigott, T. D. (2001). The power of statistical tests in meta-analysis. *Psychological Methods*, *6*(3), 203-217. https://doi.org/10.1037//1082-989X.6.3.203

Hedges, L. V., Tipton, E., & Johnson, M. C. (2010). Robust variance estimation in meta-regression with dependent effect size estimates. *Research Synthesis Methods*, *1*(1), 39–65. https://doi.org/10.1002/jrsm.5

Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M. J., & Welch, V. A. (Ed.). (2021). *Cochrane handbook for systematic reviews of interventions* (Version 6.2). Cochrane. https://www.training.cochrane.org/handbook

*Hoehn, S. C. (1998). *Relationships between self-perception of disability and help-seeking behaviors of postsecondary students with learning disabilities* [Unpublished doctoral dissertation]. University California, Los Angeles.

*Hsu, J. T.-S. (1998). *Value, expectancy, metacognition, resource management, and academic achievement: A structural model of self-regulated learning in a distance education context* [Unpublished doctoral dissertation]. University of Southern California.

*Huie, F. C., Winsler, A., & Kitsantas, A. (2014). Employment and first-year college achievement: The role of self-regulation and motivation. *Journal of Education and Work, 27*(1), 110-135. https://doi.org/10.1080/13639080.2012.718746

Huizenga, H. M., Visser, I., & Dolan, C. V. (2011). Testing overall and moderator effects in random effects meta-regression. *British Journal of Mathematical and Statistical Psychology*, *64*(1), 1-19. https://doi.org/10.1348/000711010X522687

*Hwang, Y. S., & Vrongistinos, K. (2002). Elementary in-service teachers' self-regulated learning strategies related to their academic achievements. *Journal of Instructional Psychology, 29*(3), 147-154.

*Inan, F., Yukselturk, E., Kurucay, M., & Flores, R. (2016). The impact of self-regulation strategies on student success and satisfaction in an online course. *International Journal on E-Learning, 16*(1), 23-32. https://www.learntechlib.org/primary/p/147296/

Järvelä, S., & Hadwin, A. F. (2013). New frontiers: Regulating learning in CSCL. *Educational Psychologist*, *48*(1), 25-39. https://doi.org/10.1080/00461520.2012.748006

*Jolly, M. G. (1993). *Assessing learning skills, strategies and motivational orientations in introductory accounting education* [Unpublished doctoral dissertation]. University of Idaho.

Karabenick, S. (Ed.). (1998). *Strategic help seeking: Implications for learning and teaching*. Lawrence Erlbaum Associates.

*Karabenick, S. A. (2003). Seeking help in large college classes: A person-centered approach. *Contemporary Educational Psychology, 28*(1), 37-58. https://doi.org/10.1016/S0361-476X(02)00012-7

*Karabenick, S. A. (2004). Perceived achievement goal structure and college student help seeking. *Journal of Educational Psychology, 96*(3), 569-581. https://doi.org/10.1037/0022-0663.96.3.569

Karabenick, S. A., & Berger, J.-L. (2013). Help seeking as a self-regulated learning strategy. In H. Bembenutty, T. J. Cleary, & A. Kitsantas (Eds.), *Applications of self-regulated learning across diverse disciplines: A tribute to Barry J. Zimmerman* (p. 237–261). IAP Information Age Publishing.

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

Karabenick, S. A., & Gonida, E. N. (2018). Academic help seeking as a self-regulated learning strategy: Current issues, future directions. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (p. 421–433). Routledge/Taylor & Francis Group.

Karabenick, S. A., & Knapp, J. R. (1988). Help seeking and the need for academic assistance. *Journal of Educational Psychology*, *80*(3), 406-408. https://doi.org/10.1037/0022-0663.80.3.406

*Karabenick, S. A., & Knapp, J. R. (1991). Relationship of academic help seeking to the use of learning strategies and other instrumental achievement behavior in college students. *Journal of Educational Psychology*, *83*(2), 221-230. https://doi.org/10.1037/0022-0663.83.2.221

Karabenick, S. A., & Newman, R. S. (2006). *Help seeking in academic settings: Goals, groups, and contexts*. Erlbaum.

Karabenick, S. A., & Newman, R. S. (2009). Seeking help: Generalizable self-regulatory process and social-cultural barometer. In M. Wosnitza, S. A. Karabenick, A. Efklides, & P. Nenniger (Eds.), *Contemporary motivation research: From global to local perspectives* (p. 25–48). Hogrefe & Huber Publishers.

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

Karabenick, S. A., & Puustinen, M. (2013). *Advances in help-seeking research and applications: The role of information and communication technologies*. Information Age Publishing.

Karabenick, S. A., & Sharma, R. (1994). Perceived teacher support of student questioning in the college classroom: Its relation to student characteristics and role in the classroom questioning process. *Journal of Educational Psychology*, *86*(1), 90–103. https://doi.org/10.1037/0022-0663.86.1.90

*Kehl, V. A. (2015). A study to examine the relationship between self-regulatory resource management strategies and academic achievement in student veterans with PTSD symptoms. [Unpublished thesis]. California State University, Long Beach.

Kessels, U., & Steinmayr, R. (2013). Macho-man in school: Toward the role of gender role self-concepts and help seeking in school performance. *Learning and Individual Differences*, *23*, 234-240. https://doi.org/10.1016/j.lindif.2012.09.013

*Keyser, J. N. (2013). *Self-regulated learning and time perspective as predictors of academic performance in undergraduate economics studies* [Unpublished doctoral dissertation]. University of the Free State.

*Kitsantas, A. (2002). Test preparation and performance: A self-regulatory analysis. *The journal of experimental education, 70*(2), 101-113. https://doi.org/10.1080/00220970209599501

*Kitsantas, A., & Chow, A. (2007). College students' perceived threat and preference for seeking help in traditional, distributed, and distance learning environments. *Computers and Education, 48*(3), 383-395. https://doi.org/10.1016/j.compedu.2005.01.008

*Klassen, R. M., Krawchuk, L. L., Lynch, S. L., & Rajani, S. (2008). Procrastination and motivation of undergraduates with learning disabilities: A mixed-methods inquiry. *Learning Disabilities Research & Practice, 23*(3), 137-147. https://doi.org/10.1111/j.1540-5826.2008.00271.x

Knapp, J. R., & Karabenick, S. A. (1988). Incidence of formal and informal academic help-seeking in higher education. *Journal of College Student Development, 29*(3), 223-227.

*Komarraju, M., & Nadler, D. (2013). Self-efficacy and academic achievement: Why do implicit beliefs, goals, and effort regulation matter? *Learning and Individual Differences*, *25*, 67-72. https://doi.org/10.1016/j.lindif.2013.01.005

*Köseoglu, Y. (2015). Self-efficacy and academic achievement--A case from Turkey. *Journal of Education and Practice, 6*(29), 131-141.

Koskey, K. L., Karabenick, S. A., Woolley, M. E., Bonney, C. R., & Dever, B. V. (2010). Cognitive validity of students' self-reports of classroom mastery goal structure: What students are thinking and why it matters. *Contemporary Educational Psychology*, *35*(4), 254-263. https://doi.org/10.1016/j.cedpsych.2010.05.004

*Koukounas, S. M. (2016). *Student accountability and formative assessment and its effects on motivation and academic achievement in developmental mathematics* [Unpublished doctoral dissertation]. Dowling College.

*Kumrow, D. E. (2007). Evidence-based strategies of graduate students to achieve success in a hybrid web-based course. *Journal of Nursing Education, 46*(3), 140-145. https://doi.org/10.3928/01484834-20070301-10

*Lai, C.-Y. T. (2009). *What motivational factors influence community college students' tendency to seek help through math tutoring?* [Unpublished doctoral dissertation]. University of Southern California, Ann Arbor.

*Lawanto, O., Santoso, H. B., Goodridge, W., & Lawanto, K. N. (2014). Task value, self-regulated learning, and performance in a web-intensive undergraduate engineering course: How are they related? *Journal of Online Learning and Teaching*, *10*(1), 97.

*List, A., & Nadasen, D. (2017). Motivation and self-regulation in community college transfer students at a four-year online university. *Community College Journal of Research and Practice, 41*(12), 842-866. https://doi.org/10.1080/10668926.2016.1242096

*Los, R. E. B. (2014). *The effects of self-regulation and self-efficacy on academic outcome* [Unpublished doctoral dissertation]. University of Winnipeg.

*Lynch, D. J. (2006). Motivational factors, learning strategies and resource management as predictors of course grades. *College Student Journal*, *40*(2), 423-429.

*Lynch, R., & Dembo, M. (2004). The relationship between self-regulation and online learning in a blended learning context. *The International Review of Research in Open and Distributed Learning*, *5*(2). https://doi.org/10.19173/irrodl.v5i2.189

Magno, C. (2010). Assessing academic self-regulated learning among Filipino college students: The factor structure and item fit. *The International Journal of Educational and Psychological Assessment*, *5*(1), 61-78. https://ssrn.com/abstract=2287208

Magnusson, J. L., & Perry, R. P. (1992). Academic help-seeking in the university setting: The effects of motivational set, attributional style, and help source characteristics. *Research in Higher Education*, *33*(2), 227-245. https://doi.org/10.1007/BF00973580

Makara, K. & Karabenick, S. (2013). Characterizing sources of academic help in the age of expanding educational technology: A new conceptual framework. In Karabenick, S., & M. Puustinen (Eds.), *Advances in help seeking research and applications: The role of emerging technologies*. Information Age Publishing.

Marchand, G., & Skinner, E. A. (2007). Motivational dynamics of children's academic help-seeking and concealment. *Journal of Educational Psychology*, *99*(1), 65-82. https://doi.org/10.1037/0022-0663.99.1.65

Martin, A. J. (2009). Motivation and engagement across the academic life span: A developmental construct validity study of elementary school, high school, and university/college students. *Educational and Psychological Measurement*, *69*(5), 794-824. https://doi.org/10.1177/0013164409332214

*Maslin, L.-Y. L. (1997). *Self-regulated learning and science achievement in a community college* [Unpublished doctoral dissertation]. University of Southern California.

McCaslin, M. & Good, T. L. (1996). The informal curriculum. In Berliner, D., & Calfee, R. (Eds.). *Handbook of educational psychology* (pp. 622-670). Macmillan.

*McClain, E. K. (2015). *The effects of the use of a self-monitoring form on achievement and self-regulated learning in a developmental mathematics course* [Unpublished doctoral dissertation]. University of Kansas.

Meece, J. L., Anderman, E. M., & Anderman, L. H. (2006). Classroom goal structure, student motivation, and academic achievement. *Annual Review of Psychology*, *57*, 487-503. https://doi.org/10.1146/annurev.psych.56.091103.070258

*Meuschke, D. M. (2005). *The relationship between goal-orientation, help-seeking, math self-efficacy, and mathematics achievement in a community college* [Unpublished doctoral dissertation]. University of Southern California.

*Micari, M., & Calkins, S. (2019). Is it OK to ask? The impact of instructor openness to questions on student help-seeking and academic outcomes. *Active Learning in Higher Education*, *22*(2), 143-157. https://doi.org/10.1177/1469787419846620

*Miller, D. A. (2015). Learning how students learn: An exploration of self-regulation strategies in a two-year college general chemistry class. *Journal of College Science Teaching, 44*(3), 11-16. https://www.jstor.org/stable/43631933

*Moody, R. (1993). Motivation, learning strategies, and personality. *Journal of The First-Year Experience & Students in Transition, 5*(1), 37-75.

*Mullen, P. A. (2009). *Identification and comparison of academic self regulatory learning strategy use of students enrolled in traditional and accelerated baccalaureate degree nursing programs* [Unpublished doctoral dissertation]. Indiana University.

*Nakajima, M. A., & Freesemann, K. W. (2013). Help-seeking behaviors among athletic training students in the clinical education setting: A pilot study. *Athletic Training Education Journal, 8*(4), 115-123. https://doi.org/10.4085/0804115

*Natsis, A., Papadopoulos, P. M., & Obwegeser, N. (2018). Research integration in information systems education: students' perceptions on learning strategies, skill development, and performance. *Journal of Information Technology Education: Research, 17*(1), 345-363. https://doi.org/10.28945/4120

*Naumann, W. C., Bandalos, D., & Gutkin, T. B. (2003). Identifying variables that predict college success for first-generation college students. *Journal of College Admission*, *181*, 4-9.

Nelson-Le Gall, S. (1981). Help-seeking: An understudied problem-solving skill in children. *Developmental Review*, *1*(3), 224-246. https://doi.org/10.1016/0273-2297(81)90019-8

Nelson Le-Gall, S. (1985). Chapter 2: Help-Seeking behavior in learning. *Review of Research in Education*, *12*(1), 55-90. https://doi.org/10.3102/0091732X012001055

Newman, R. S. (1990). Children's help-seeking in the classroom: The role of motivational factors and attitudes. *Journal of Educational Psychology*, *82*(1), 71-80. https://doi.org/10.1037/0022-0663.82.1.71

Newman, R. S. (1991). Goals and self-regulated learning: What motivates children to seek academic help? In M. L. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 7, pp. 151-183). JAI Press.

Newman, R. S. (1994). Adaptive help seeking: A strategy of self-regulated learning. In D. H. Schunk & B. J, Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 283-301). Lawrence Erlbaum Associates.

Newman, R. S. (2000). Social influences on the development of children's adaptive help seeking: The role of parents, teachers, and peers. *Developmental Review*, *20*(3), 350-404. https://doi.org/10.1006/drev.1999.0502

Newman, R. S. (2008). Adaptive and nonadaptive help seeking with peer harassment: An integrative perspective of coping and self-regulation. *Educational Psychologist*, *43*, 1-15. https://doi.org/10.1080/00461520701756206

Newman, R. S. (2010). Encourage students to seek academic help: The role of the educational therapist. *The Educational Therapist*, *31*, 2, 8-10.

Newman, R. S., & Goldin, L. (1990). Children's reluctance to seek help with schoolwork. *Journal of Educational Psychology*, *82*(1), 92-100.

Newman, R. S., & Schwager, M. T. (1993). Students' perceptions of the teacher and classmates in relation to reported help seeking in math class. *The Elementary School Journal*, *94*(1), 3-17. https://doi.org/10.1086/461747

Newman, R. S., & Schwager, M. T. (1995). Students' help seeking during problem solving: Effects of grade, goal, and prior achievement. *American Educational Research Journal*, *32*(2), 352-376.

*Obrentz, S. B. (2012). *Predictors of science success: The impact of motivation and learning strategies on college chemistry performance* [Unpublished doctoral dissertation]. Georgia State University.

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. *Frontiers in Psychology*, *8*, 422. https://doi.org/10.3389/fpsyg.2017.00422

*Pantel, S. J. (2008). *The role and function of anxiety, self-efficacy, and resource management strategies on academic achievement in university students* [Unpublished doctoral dissertation]. University of Toronto.

Paris, S. G., & Newman, R. S. (1990). Development aspects of self-regulated learning. *Educational Psychologist*, *25*(1), 87-102. https://doi.org/10.1207/s15326985ep2501_7

*Parlett, D. K. (2012). *A comparison of associate and bachelor degree nursing students' motivation* [Unpublished doctoral dissertation]. Walden University.

*Parnes, M. F., Kanchewa, S. S., Marks, A. K., & Schwartz, S. E. (2020). Closing the college achievement gap: Impacts and processes of a help-seeking intervention. *Journal of Applied Developmental Psychology, 67*, Article 1011121. https://doi.org/10.1016/j.appdev.2020.101121

Patrick, H., Kaplan, A., & Ryan, A. M. (2011). Positive classroom motivational environments: Convergence between mastery goal structure and classroom social climate. *Journal of Educational Psychology, 103*(2), 367–382. https://doi.org/10.1037/a0023311

*Payne, J., & Israel, N. (2010). Beyond teaching practice: Exploring individual determinants of student performance on a research skills module. *Learning and Individual Differences*, *20*(3), 260-264. https://doi.org/10.1016/j.lindif.2010.02.005

Piaget, J. (1968). *Six psychological studies. Trans. A. Tenzer*. Crown Publishing Group/Random House.

Pigott, T. D., & Polanin, J. R. (2020). Methodological guidance paper: High-quality meta-analysis in a systematic review. *Review of Educational Research*, *90*(1), 24-46. https://doi.org/10.3102/0034654319877153

Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning. M. Boekaerts, P. R. Pintrich, and M. Zeidner (Eds), *Handbook of self-regulation* (pp. 451-501).

Pintrich, P. R. (2004). A conceptual framework for assessing motivation and self-regulated learning in college students. *Educational Psychology Review*, *16*(4), 385-407. https://doi.org/10.1007/s10648-004-0006-x

Pintrich, P. R., Smith, D. A., Garcia, T., & McKeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement*, *53*(3), 801-813. https://doi.org/10.1177/0013164493053003024

Pintrich, P. R., & Zusho, A. (2002). The development of academic self-regulation: The role of cognitive and motivational factors. In A. Wigfield & J. S. Eccles (Eds.), *Development of achievement motivation* (pp. 249-284). Academic Press. https://doi.org/10.1016/B978-012750053-9/50012-7

*Pizzimenti, M. A., & Axelson, R. D. (2015). Assessing student engagement and self-regulated learning in a medical gross anatomy course. *Anatomical Sciences Education, 8*(2), 104-110. https://doi.org/10.1002/ase.1463

Polanin, J. R., & Pigott, T. D. (2015). The use of meta-analytic statistical significance testing. *Research Synthesis Methods*, *6*(1), 63-73. https://doi.org/10.1002/jrsm.1124

Polanin, J. R., Pigott, T. D., Espelage, D. L., & Grotpeter, J. K. (2019). Best practice guidelines for Abstract screening large-evidence systematic reviews and meta-analyses. *Research Synthesis Methods*, *10*(3), 330-342. https://doi.org/10.1002/jrsm.1354

Pustejovsky, J. E. (2020). clubSandwich: Cluster-Robust (Sandwich) Variance Estimators with Small-Sample Corrections (0.4.2) [R package]. https://github.com/jepusto/clubSandwich

*Radovan, M. (2010). The influence of self-regulated learning and age on success in studying. *Journal of Contemporary Educational Studies/Slovenian Research Agency, 61*(5), 102-124.

*Rea, D. G. (1992). *Student characteristics, institutional characteristics, and undergraduate achievement: A study of Virginia Tech, 1985 to 1989* [Unpublished doctoral dissertation]. Virginia Polytechnic Institute and State University.

Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, *98*(1), 209-218. https://doi.org/10.1037/0022-0663.98.1.209

*Reeves, P. M., & Sperling, R. A. (2015). A comparison of technologically mediated and face-to-face help-seeking sources. *The British Journal of Educational Psychology,* *85*(4), 570-584. https://doi.org/10.1111/bjep.12088

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, *138*(2), 353-387. https://doi.org/10.1037/a0026838

Robbins, S. B., Lauver, K., Le, H., Davis, D., Langley, R., & Carlstrom, A. (2004). Do psychosocial and study skill factors predict college outcomes? A meta-analysis. *Psychological Bulletin*, *130*(2), 261-288. https://doi.org/10.1037/0033-2909.130.2.261

*Robinson, P. L. (2006). *Predicting freshmen college success: The relationship between peer learning, help seeking, math self -efficacy, English self -efficacy and institutional integration* [Unpublished doctoral dissertation]. University of Southern California

Rodgers, M. A., & Pustejovsky, J. E. (2021). Evaluating meta-analytic methods to detect selective reporting in the presence of dependent effect sizes. *Psychological Methods*, *26*(2), 141-160. https://doi.org/10.1037/met0000300

Rosen, S. (1983). Perceived inadequacy and help-seeking. In B. M. Depaulo, A. Nadler, & J. D. Fisher (Eds.), *New directions in helping: Vol. 2. Help-seeking*, (pp. 73-107). Academic Press.

*Roszkowski, M. J. (2013). The relationship of help-seeking inclinations to traditional predictors of academic success and first-semester college GPA. J*ournal of College Orientation, Transition, and Retention, 21*(1). https://doi.org/10.24926/jcotr.v21i1.2858

Roth, A., Ogrin, S., & Schmitz, B. (2016). Assessing self-regulated learning in higher education: a systematic literature review of self-report instruments. *Educational Assessment, Evaluation and Accountability*, *28*(3), 225-250. https://doi.org/10.1007/s11092-015-9229-2

*Rueda, R., Lim, H. J., O'Neil, H. F., Griffin, N., Bockman, S., & Sirotnik, B. (2010). Ethnic differences on students' approaches to learning: Self-regulatory cognitive and motivational predictors of academic achievement for Latino/a and White college students. In M. Khine, & I. Saleh (Eds.), *New science of learning: Cognition, Computers and collaboration in education* (pp. 133-161). Springer, New York, NY. https://doi.org/10.1007/978-1-4419-5716-0_7

Ryan, A. M., Patrick, H., & Shim, S. O. (2005). Differential profiles of students identified by their teacher as having avoidant, appropriate, or dependent help-seeking tendencies in the classroom. *Journal of Educational Psychology*,*97*(2), 275-285. https://doi.org/10.1037/0022-0663.97.2.275

Ryan, A. M., & Pintrich, P. R. (1997). "Should I ask for help?" The role of motivation and attitudes in adolescents' help seeking in math class. *Journal of Educational Psychology*, *89*(2), 329-341. http://dx.doi.org/10.1037/0022-0663.89.2.329

Ryan, A. M., Pintrich, P. R., & Midgley, C. (2001). Avoiding seeking help in the classroom: Who and why? *Educational Psychology Review*, *13*(2), 93–114. https://doi.org/10.1023/A:1009013420053

Ryan, A. M., Shim, S. S., Lampkins-uThando, S. A., Kiefer, S. M., & Thompson, G. N. (2009). Do gender differences in help avoidance vary by ethnicity? An examination of African American and European American students during early adolescence. *Developmental Psychology*, 45(4), 1152-1163. https://doi.org/10.1037/a0013916

Ryan, A. M., & Shin, H. (2011). Help-seeking tendencies during early adolescence: An examination of motivational correlates and consequences for achievement. *Learning and Instruction*, *21*(2), 247-256. https://doi.org/10.1016/j.learninstruc.2010.07.003

Sandoval, B. A., & Lee, F. (2006). When is seeking help appropriate? How norms affect help seeking in organizations. In S. Karabenick & R. Newman (Eds.), *Help seeking in academic setting: Goals, groups, and contexts*, (pp. 175-202). Lawrence Erlbaum.

Sáenz, V. B., & Ponjuan, L. (2012). Latino males: Improving college access and degree completion—A new national imperative. *Perspectivas: Issues in Higher Education Policy and Practice*, *1*. http://www.aahhe.org/_resources/pdf/Perspectivas-Vol1.pdf

*Santarosa, S. R. (2011). *Motivation and strategies for learning in traditional-aged college students: An exploratory study* [Unpublished doctoral dissertation]. University of Akron.

Schenke, K., Lam, A. C., Conley, A. M., & Karabenick, S. A. (2015). Adolescents' help seeking in mathematics classrooms: Relations between achievement and perceived classroom environmental influences over one school year. *Contemporary Educational Psychology*, *41*, 133-146. https://doi.org/10.1016/j.cedpsych.2015.01.003

*Schwartz, S. E. O., Kanchewa, S. S., Rhodes, J. E., Gowdy, G., Stark, A. M., Horn, J. P., . . . Spencer, R. (2018). 'I'm having a little struggle with this, can you help me out?': Examining impacts and processes of a social capital intervention for first-generation college students. *American Journal of Community Psychology*, 61(1-2), 166-178. https://doi.org/10.1002/ajcp.12206

Schworm, S., & Gruber, H. (2012). e-Learning in universities: Supporting help-seeking processes by instructional prompts. *British Journal of Educational Technology*, *43*(2), 272-281. https://doi.org/10.1111/j.1467-8535.2011.01176.x

Sheu, H.-B., Lent, R. W., Lui, A. M., Wang, X. T., Phrasavath, L., Cho, H.-J., & Morris, T. R. (2020). Meta-analytic path analysis of the social cognitive well-being model: Applicability across life domain, gender, race/ethnicity, and nationality. *Journal of Counseling Psychology*, *67*(6), 680–696. https://doi.org/10.1037/cou0000431

*Silagyi-Rebovich, E. J. (1997). *Motivation and learning strategies among dietetic students at four-year colleges and universities* [Unpublished doctoral dissertation]. University of South Carolina.

*Sims, B. C. (2006). *A bridge over troubled waters: Promoting self -regulated learning in first-year college students* [Unpublished doctoral dissertation]. University of Michigan.

*Singleton-Williams, S. D. (2009). *Motivational and cognitive learning strategies as predictors of academic success in economically disadvantaged community college students* [Unpublished doctoral dissertation]. Capella University.

*Sletten, S. R. (2015). *Investigating flipped learning: post-secondary student self-regulated learning, perceptions, and achievement* [Unpublished doctoral dissertation]. University of North Dakota.

*Sommer, M., & Dumont, K. (2011). Psychosocial factors predicting academic performance of students at a historically disadvantaged university. *South African Journal of Psychology*, *41*(3), 386-395.

Spitzer, T. M. (2000). Predictors of college success: A comparison of traditional and nontraditional age students. *NASPA Journal*, *38*(1), 82-98. https://doi.org/10.2202/1949-6605.1130

Stanton-Salazar, R. D., Chávez, L. F., & Tai, R. H. (2001). The help-seeking orientations of Latino and non-Latino urban high school students: A critical-sociological investigation. *Social Psychology of Education*, *5*(1), 49-82. https://doi.org/10.1023/A:1012708332665

*Stark, E. (2019). Examining the role of motivation and learning strategies in student success in online versus face-to-face courses. *Online Learning*, *23*(3), 234-251. https://doi.org/10.24059/olj.v23i3.1556

*Sun, Z., Xie, K., & Anderman, L. H. (2018). The role of self-regulated learning in students' success in flipped undergraduate math courses. *The Internet and Higher Education*, *36*, 41-53. https://doi.org/10.1016/j.iheduc.2017.09.003

*Talbot, G. L. (1994). *The assessment of student study skills and learning strategies to prepare teachers for academic advising tasks or the prevalidation of motivated strategies for learning questionnaire (MSLQ), learning and study strategies inventory (LASSI), and test of reactions and adaptation to college (TRAC)* [Unpublished manuscript]. Champlain Saint Lawrence, Quebec.

Tanner-Smith, E. E., & Tipton, E. (2014). Robust variance estimation with dependent effect sizes: practical considerations including a software tutorial in Stata and SPSS. *Research Synthesis Methods*, *5*(1), 13–30. https://doi.org/10.1002/jrsm.1091

*Taylor-Sims, M. A. (2011). *Differences in motivation and cognitive learning strategy use from high school to college and impact on first-semester college grade point average* [Unpublished doctoral dissertation]. Auburn University.

Tipton, E., Pustejovsky, J. E., & Ahmadi, H. (2019). A history of meta-regression: Technical, conceptual, and practical developments between 1974 and 2018. *Research Synthesis Methods*, *10*(2), 161-179. https://doi.org/10.1002/jrsm.1338

Valentine, J. C., Pigott, T. D., & Rothstein, H. R. (2010). How many studies do you need? A primer on statistical power for meta-analysis. *Journal of Educational and Behavioral Statistics*, *35*(2), 215-247. https://doi.org/10.3102/1076998609346961

*Vazquez, L. (2008). *What motivational factors influence community college students' tendency to seek help from the writing center?* [Unpublished doctoral dissertation]. University of Southern California, Ann Arbor.

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, *36*(3), 1-48. https://doi.org/10.18637/jss.v036.i03

*Villavicencio, F. T. (2011). Influence of self-efficacy and help-seeking on task value and academic achievement. *Philippine Journal of Psychology, 44*(2), 166-180..

*Vogt, C. M. (2008). Faculty as a critical juncture in student retention and performance in engineering programs. *Journal of Engineering Education,* *97*(1), 27-36. https://doi.org/10.1002/j.2168-9830.2008.tb00951.x

*Vogt, C. M., Hocevar, D., & Hagedorn, L. S. (2007). A social cognitive construct validation: Determining women's and men's success in engineering programs. *The Journal of Higher Education, 78*(3), 337-364. https://doi.org/10.1353/jhe.2007.0019

Vygotsky, L.S. (1980). *Mind in society: The development of higher psychological processes*. Harvard University Press.

*Warr, P., & Downing, J. (2000). Learning strategies, learning anxiety and knowledge acquisition. *British Journal of Psychology, 91*(3), 311-333. https://doi.org/10.1348/000712600161853

*Watson, M., McSorley, M., Foxcroft, C., & Watson, A. (2004). Exploring the motivation orientation and learning strategies of first year university learners. *Tertiary Education and Management*, *10*(3), 193-207. https://doi.org/10.1023/B:TEAM.0000044777.21941.25

Weinstein, C. E., & Acee, T. W. (2013). Helping college students become more strategic and self-regulated learners. In H. Bembenutty, T. J. Cleary, & A. Kitsantas (Eds.), *Application of self-regulated learning across diverse disciplines: A tribute to Barry J. Zimmerman* (pp.197-236). Charlotte, NC: Information Age Publishing Inc.

Weinstein, C. E., Palmer, D. R., and Schulte, A. C. (1987). *LASSI-Learning and Study Strategies Inventory*. H&H Publishing.

*White, M. C., & Bembenutty, H. (2013). Not all avoidance help seekers are created equal: Individual differences in adaptive and executive help seeking. *SAGE Open,* *3*(2), 1–14. https://doi.org/10.1177/2158244013484916

Wimer, D. J., & Levant, R. F. (2011). The relation of masculinity and help-seeking style with the academic help-seeking behavior of college men. *The Journal of Men's Studies*, *19*(3), 256-274. https://doi.org/10.3149/jms.1903.256

Wolters, C. A., Pintrich, P. R. & Karabenick, S. A. (2005). Assessing academic self-regulated learning. In K. A. Moore & L. Lippman (Eds.), *What do children need to flourish? Conceptualizing and measuring indicators of positive development* (pp. 251– 270). Springer. https://doi.org/10.1007/0-387-23823-9_16

*Xuan, D., Zailani, M. A., & Ismail, W. M. (2020). The influence of self-efficacy, task value, and goal orientation on help-seeking and academic performance. *Humanities & Social Sciences Reviews, 8*(2) 722-731. https://doi.org/10.18510/hssr.2020.8281

*Zhang, W. (2018). *Relationships among help-seeking, self-esteem, work avoidance and locus of*

control: A path analysis [Unpublished thesis]. The University of Arizona.

Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, *81*(3), 329-339. https://doi.org/10.1037/0022-0663.81.3.329

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In *Handbook of self-regulation* (pp. 13-39). Academic Press. https://doi.org/10.1016/B978-012109890-2/50031-7

Zimmerman, B. J., & Schunk, D. (Eds.). (2001). *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed.). Lawrence Erlbaum Associates.

Zusho, A., & Barnett, P. A. (2011). Personal and contextual determinants of ethnically diverse female high school students' patterns of academic help seeking and help avoidance in English and mathematics. *Contemporary Educational Psychology*, *36*(2), 152-164. https://doi.org/10.1016/j.cedpsych.2011.02.002

Zusho, A., Karabenick, S. A., Rhee Bonney, C., & Sims, B. C. (2007). Contextual determinants of motivation and help seeking in the college classroom. In R. P. Perry & J. C. Smart (Eds.), *The scholarship of teaching and learning in higher education: An evidence-based perspective* (pp. 611–659). New York: Springer.