

Empirical Evidence for Evaluation Anxiety and Expectancy-Value Theory for Help Sources

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Abstract: Expectancy-Value Theory for Help Sources (EVT-HS) states that whether or not students seek help from a particular source is determined by their perceived expectation that there will be help available, and the perceived value for the help from that source. This paper provides initial empirical validation for EVT-HS, while also introducing and providing support for costs of seeking help from a particular help source impacting intention to seek help. Our survey experiment shows that raising perceived expectancies and values for a help source significantly predicts a student's intention to seek help. Our results also show that evaluation anxiety, as a potential negative value, inversely predicts intentions to seek help from a particular source.

Introduction

Appropriate help seeking is a necessary skill in becoming a successful self-regulated learner and it is highly correlated with student achievement in the classroom (Magnusson & Perry, 1992). Students who do not seek help with difficult concepts, or who fail to consult with instructors, or who request inappropriate help are not as likely to experience success as students who seek help effectively (Magnusson & Perry, 1992). Seeking help when necessary assists students in understanding complex concepts that they do not understand (Magnusson & Perry, 1992). However, the process of identifying a help need to actually pursuing that help is a complex path. Not all students successfully find their way.

In this article, we provide initial empirical evidence in support of Expectancy-Value Theory for Help Sources (Makara & Karabenick, 2013) as a lens for understanding what perceptions impact from whom students seek help. This theory encompasses many social and non-social factors that influence student decisions to seek help. With an understanding of the theory of help-seeking from help sources, designers of learning experiences can better support student help seeking. We designed a survey experiment to link perceived expectancies, values, and costs with intention to seek help from potential peer helpers. While the experimental context is intended to inform the future design of an online peer help support system, the experimental methodology is designed to allow for a broader interpretation of results.

Prior Work

In this article, we focus on three steps of the help seeking process to investigate how learning science theory can be leveraged to improve learning environments. These three steps include: “decide to seek help from an external source”, “identify potential helpers”, and “implement strategies for engaging the helper” (Nelson-Le Gall, 1981). We focus on these three steps as the potential for immediate impact to reduce obstacles to effective participation is tremendous. These three steps also lend themselves well to a lens of Expectancy Value Theory for understanding how student beliefs impact their help seeking while we use a different theory, Expectancy-Value Theory for Help Sources (EVT-HS), to explain whether learners pursue potential helpers. EVT-HS is a more constrained interpretation of Expectancy Value Theory for learning, but instead of focusing on larger self-concept tasks, such as learning a concept, its focus is on the decision to seek help from a particular help source.

Help Seeking in Learning Contexts

Nelson-Le Gall (1981) proposes one model of help seeking in which the student must:

- (1) first become aware of a help need,
- (2) decide to seek help from an external source,
- (3) identify potential helpers,
- (4) implement strategies for engaging the helper, and
- (5) reflect upon the help seeking attempt.

The first step toward help seeking revealed by Nelson-Le Gall's task analysis is identifying a help need. If students have the metacognitive capabilities to monitor their progress and can detect when they encounter a problem, then it is possible for them to proceed to the next step in the help seeking model. However, if students are not aware that they have encountered an obstacle, then they will not seek help when necessary (Nelson-Le Gall, 1981). Research shows that this metacognitive ability to identify a help need is developed through maturation and experience (Markman, 1977).

In order to make the decision to seek help, a person must first weigh the costs and benefits of doing so. Asking for assistance can help a student complete a task, but it can come with social and personal costs such as feeling less competent or receiving less credit (Nelson-Le Gall, 1981). Not everyone is equally as sensitive or aware of these costs and benefits. A student's disposition and goals may also affect the choice.

Once a decision has been made to seek help, one must next select a helper. In this step, the decision is influenced by the student's perceptions and knowledge of potential helpers as well as the social situation. These perceptions and situational factors include the sex and age of both the help-seeker and the helper, the role relationship and status of both parties, perceived willingness to help, perceived competence of the helper, and socioeconomic status (Nelson-Le Gall, 1981). These perceptions and situational factors are of particular interest because they can often be intentionally designed, especially within interactive learning environments in which the system connects students to the help they require.

Once the learner has decided to seek help, and decided on a helper, there are a variety of outcomes to expect, dependent upon the student's goals in seeking help. Help-avoidance, executive (or expedient) help seeking, or instrumental help seeking (Nelson-Le Gall, 1981) are also similar to avoidant, autonomous, and dependent help seeking behaviors (Nadler, 1997). One can either ask for help or not, but one can also ask for help simply to complete a task quicker or to learn more. There is also a distinction to be made among help seeking, information-seeking, feedback-seeking, answer requests, or error checks (Puustinen et al., 2011). Beyond general categories, one can also examine help seeking based upon linguistic features such as the directness and politeness of the help being sought (Puustinen et al., 2011).

If the desired help is not acquired, students are then forced to reevaluate their strategies for obtaining help and may repeat the previous steps until help is achieved (Nelson-Le Gall, 1981).

Expectancy-Value Theory

Students' decisions to pursue learning goals are determined by their expectancies for success, and the values they place on the outcomes that come from that success. Eccles & Wigfield (2002)'s Expectancy Value Theory provides a larger model that includes these expectancies and values, but also incorporates students' beliefs and self-schemata. This model can be applied to a wide range of learning-oriented behaviors, including help seeking. We will be focusing on the direct antecedents that determine students' achievement-related choices and performance: the expectation of success and subjective task value. We apply Expectancy Value Theory at the help seeking process level, and later introduce Expectancy Value Theory for Help Sources for understanding student behavior when selecting a help source.

Expectancy Value Theory for Help Sources is derived from Expectancy Value Theory, although due to its more targeted focus there are some differences. Both beliefs about the help source and more general beliefs about help seeking expectancies and values are important factors in the process of deciding to seek help. In this section we describe and distinguish Expectancy Value Theory from EVT-HS.

Modern Expectancy Value Theory

The Expectancy Value Theory (EVT) of modern educational psychology incorporates students' ability beliefs, expectancies for success on a particular task, and four different task values (i.e., intrinsic, utility, attainment, and cost) (Eccles et al., 1983). More recent work on Expectancy-Value Theory has pointed toward expectancy for success being more predictive of performance and value beliefs being more predictive of achievement-related choice and effort (Trautwein et al., 2012).

Trautwein et al. (2012) provides evidence for the relationship between expectancy and value for a task to be enhancing. That is, in their model, both expectancy and value positively predicted performance and their interaction produced a stronger than additive effect on performance. These results held true in both mathematics and English language learning domains, which suggests that the interaction of expectancy for success and task values should be included as a term in Expectancy Value Theory analyses and models. Trautwein et al. (2012) also included costs of performing a task alongside intrinsic, utility, and attainment values which is similar to other work incorporating costs into Expectancy Value Theory (Eccles & Wigfield, 2002). While "low cost" was significantly correlated with the other values, the correlation between utility values and low cost were generally strongest. The authors hypothesized that low cost and utility values represent extrinsic values, while the attainment and intrinsic values were considered more intrinsic. However, this explanation assumed a particular definition of costs, largely focused on the amount of time required of the student to pursue that avenue of help.

Expectancy of success also has multiple dimensions in modern Expectancy Value Theory. These dimensions consist of broad ability beliefs about competence in a particular domain, and a more narrow expectancy of success on a specific upcoming task. Research has shown that these two dimensions are highly

correlated, and in many real-world achievement situations they are empirically indistinguishable (Eccles & Wigfield, 2002). Trautwein et al. (2012) measured expectancy for success in math and English with a self-concept instrument with items such as “I am good at mathematics/English.” It is a common practice of modern research on Expectancy Value Theory to use similar self-concept items rather than expectancy for success items for a specific upcoming task. While Expectancy Value Theory has directed expectancies for success to be measured more generally at the self-concept level, it is important to include expectancies for success on a specific upcoming task into initial investigations of Expectancy Value Theory for help seeking.

Expectancy Value Theory of Help Sources

The process of pursuing help, from Nelson-Le Gall’s (1981) model, once the student has decided to seek help requires (3) selecting a source from which to seek help and then (4) to follow through with the help request. While the actual pursuing of the help can be understood through the Eccles & Wigfield Expectancy Value Theory model as previously described, the selection of a help source can be better examined through Makara & Karabenick’s (2013) Expectancy Value model of help seeking for help sources, below:

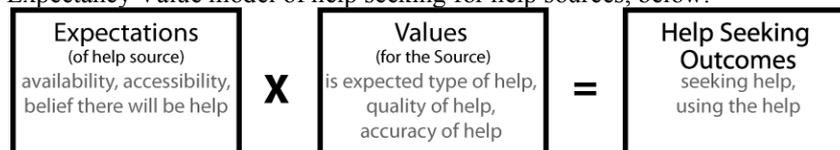


Figure 1. Makara & Karabenick Expectancy Value Theory (2013) for help sources model

Expectations for help from a particular help source are based on beliefs about whether that source will be available to provide help, whether that source is accessible, and a basic belief that there will be obtainable help from that particular source. Values for a help source originate from whether that help source will be able to provide the expected type of help such as the expected quality and accuracy. This model functions as an initial theoretical explanation for how students select and seek help from a particular resource, but empirical support for this framing of expectancies for success and values is not yet empirically validated.

Makara & Karabenick (2013) define expectations for success from the help source as the belief there will be help which is more about the help source rather than student self-concept. A student might have general self-concept beliefs about their past successes in help seeking in general, but also self-concept beliefs for the pursuit of help from a particular help source. It is currently unknown how these two levels of expectations for success in help seeking combine to influence help seeking from a particular source.

Expectancy Value Theory for Help Sources also largely focuses on utility value for the values for the help source. This is likely due to the other, more intrinsically-related value types being less relevant in a help seeking concept. Intrinsic value was measured by items in Trautwein et al. (2012) such as, “I enjoy puzzling over mathematics/English problems.” It seems unlikely that students would enjoy seeking help and consider attaining help as a personal value. However, Makara & Karabenick (2013) could certainly have included cost items in their model of Expectancy Value Theory for Help Sources. While cost can be measured as an amount of time required to achieve the task as in Trautwein et al. (2012), it can also be measured as public and private threats to self-esteem, and inconveniencing a particular help source. Students can perceive costs at the help seeking level (i.e., “Others would think I was dumb if I ask for help in this class”, Wolters et al., 2003), but also at the help source level (i.e., “This helper would think I was dumb if I asked them for help in this class.”). While costs were not explicitly included in Makara & Karabenick (2013), an examination of costs’ function in seeking help from a particular source is an additional purpose of this article.

In determining from whom/where to seek help and whether to actually pursue that help, we must consider student expectations and values for the help from a help source. This examination should incorporate costs for seeking help as part of gaining a wider understanding of beliefs for a help source. Better understanding the relationship between expectancies and values for a help source and student self-concept beliefs about their help seeking is an additional goal.

Costs of Seeking Help

This section introduces costs of seeking help with a particular focus on social costs of seeking help. Costs are typically considered one of many possible values (alongside attainment, intrinsic, and utility values). But there are also many different types of costs. Costly outcomes can include private threats to self-esteem (i.e., “If I ask for help, it means I’m not competent”), public threats to self-esteem (i.e., “If I ask for help the teacher will think I’m not competent”), face threatening acts (i.e., “It will inconvenience the teacher to help me”), among others.

Costs were not included in the Expectancy Value for Help Sources Theory explicitly, but certainly one help source could induce more costs than another.

Evaluation anxiety, often referred to as evaluation apprehension, or a person's concern about being evaluated (Guerin, 1986), can be impacted by numerous contextual factors and is also similar to perceived public threats to self-esteem (Shapiro, 1983). Both of these factors are related to impression management strategies to prevent others from perceiving one as incompetent. In this section, we focus on the effect of evaluation anxiety in learning contexts.

Anxiety related to the potential to be evaluated, whether implied or explicitly stated, is known as evaluation anxiety (Cottrell et al., 1968). Learning often requires evaluation, either from others such as the teacher or from within when self-monitoring one's progress, and so the issue of anxiety around evaluation potential is relevant to learners. However, a review of the literature does not appear to reveal evaluation anxiety systematically studied with regards to its effects on help seeking. Evaluation anxiety is referred to, specifically in reference to its relationship with threats to public self-esteem, as in Nadler (1997) in which the author posits that threat to public self-esteem is an explanatory concept for participants avoiding seeking help on ego-central tasks, and that this "suggests that one avoids the seeking of help because of evaluation anxiety concerns."

Modern methods to measure evaluation anxiety look not only at experienced evaluation anxiety, but also the cause of the evaluation anxiety (Leary et al., 1986; Bagley, 2007). To measure experienced evaluation anxiety, a subset of items used to measure negative affect are used as a scale. These items include negative affects specifically related to anxiety: nervous, worried, calm, tense, and relaxed (Leary et al., 1986).

Empirical Evidence for Expectancy Value Theory for Help Sources

As an initial step toward understanding how evaluation anxiety and EVT-HS impacts student help seeking, we devised an online experiment testing the EVT-HS with evaluation anxiety model. This initial survey connects potential help source manipulations to items measuring expectancy value beliefs toward the help source, evaluation anxiety, and intention to seek help. The purpose of this experiment is to serve as initial empirical evidence for the relationships between expectancy for the help source, values for the help source, and help seeking outcomes as proposed in Makara & Karabenick (2013). This experiment also provides initial empirical evidence for including evaluation anxiety as a social concern in help seeking from a particular source.

Expectancies, values, and costs for the help source can be manipulated through the presentation of potential help sources. We are grounding the context of the help sources in a peer helper support system that our research group is in the process of designing and testing. Potential helper screenshots should directly manipulate perceptions of expectancy and value for help sources. The helper screenshot, as shown in Figure 2, is on a blue background with an anonymized profile image and username, and one of four possible sentences that represent our experimental manipulation:

- (1) "This person is a fellow student" (control)
- (2) "This person is available to give help" (expectancy)
- (3) "This person offers high quality help" (value)
- (4) "This person will evaluate the quality of your question" (cost)

By deriving these sentences directly from Makara & Karabenick's (2013) EVT-HS, we intend to test whether the theory has the hypothesized effect on help seeking attitudes towards the help sources.

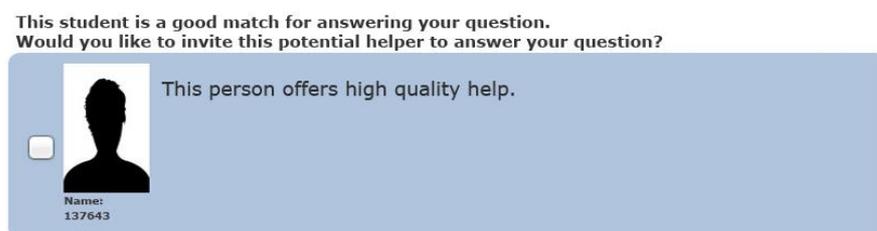


Figure 2. A Helper screenshot with the 'values for help source' manipulation sentence. Other sentences were used for the other three conditions.

Research Hypotheses

Our research hypotheses are derived from the direct relationship between the EVT-HS theory, and our manipulations. There is a set of hypotheses dedicated to the relationship between the manipulations and the beliefs, and an additional set of hypotheses related to the beliefs and the help seeking outcome. Figure 3 presents our tested hypotheses and the associated significant relationships.

EVT Helper Survey Experiment

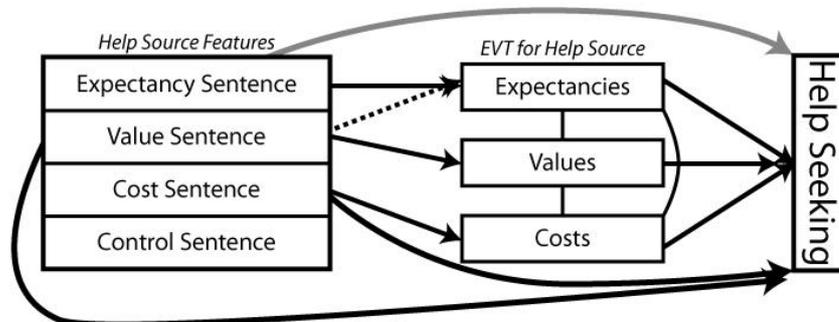


Figure 3. The hypotheses results model for the EVT Helper Survey Experiment. Black solid lines indicate supported hypotheses, grey solid lines are unsupported hypotheses, and black dotted lines are un-hypothesized relationships. Arrow-less lines indicate correlations.

Connecting Manipulations to Beliefs

- The Expectancy Sentence (“This person is available to give help”) will increase self-reported expectations for the help source, more than the Control Sentence (and other sentence conditions).
 - (*Partial Support*) The Value Sentence and Expectancy Sentence resulted in significantly more self-reported Expectancy Beliefs for the help source, than the Cost and Control Sentences, $F(3,159)=13.68, p < 0.001, R^2 = 0.68$.
- The Value Sentence (“This person offers high quality help”) will increase self-reported values of the help source, more than the Control Sentence (and other sentence conditions).
 - (*Supported*) The Value Sentence predicts significantly more self-reported Value Beliefs than the Expectancy and Control Sentences which predict more than the Cost Sentence, $F(3,159)=35.35, p < 0.0001, R^2=0.64$.
- The Cost Sentence (“This person will evaluate the quality of your question”) will increase self-reported costs for the help source, more than the Control Sentence (and other sentence conditions).
 - (*Supported*) The Cost Sentence significantly predicts more Cost Beliefs (i.e., evaluation anxiety) than the Expectancy and Value Sentences, with the Control Sentence being statistically indistinguishable from the Cost and Expectancy conditions, $F(3,159)=2.80, p = 0.04, R^2=0.75$.

Connecting Beliefs to Intention to Seek Help

- The EVT-HS beliefs should connect to help seeking outcomes.
 - Expectancy for Help Sources Beliefs should significantly positively predict intentions to seek help, *Supported*: $F(1,165)=401.11, p < 0.0001, R^2=0.79$.
 - Value for Help Sources Beliefs should significantly positively predict intentions to seek help, *Supported*: $F(1,213)=245.77, p < 0.0001, R^2=0.77$.
 - Cost beliefs (i.e., evaluation anxiety) should significantly negatively predict intentions to seek help, *Supported*: $F(1,212)=25.83, p < 0.0001, R^2=0.69$.
 - Expectancies and Values for the Help Source should interact as an enhancing model on the prediction of intention to seek help, *Partially Supported*: $\beta = -0.03, t(200) = -1.69, p = 0.09, R^2=0.86$.

Study Design and Methodology

54 participants were recruited from a private American university’s participant pool. 7% of respondents experienced no college education, 20% received some college education, 43% obtained a bachelor’s degree, and 30% had a graduate degree. 61% of respondents were from the United States, 11% from East Asia, 24% from

India, and 4% from Eastern Europe. Respondents had a mean age of $\mu=28.7$ years, $\sigma = 9.8$ and 63% of survey respondents were female. Each participant visited the online survey, read the instructions, viewed a helper screenshot, and then completed survey items measuring our constructs of interest. Each participant saw all four help source sentences randomized in this within-subjects survey experiment.

Survey Items

Dependent measures were evaluation anxiety items from Leary et al. (1986), intention to seek and avoid help from the self-regulated learning literature in Wolters et al. (2005), and newly designed items we derived from the Expectancy Value Theory for Help Sources, shown in Table 1.

Table 1. Survey items derived from EVT-HS to measure perceived expectancies and values for a help source.

<p>Expectancy Beliefs for the Help Source</p> <ol style="list-style-type: none"> 1) <This person> is available to give me help. 2) If I ask for help from <this person>, they will give me help. 3) If I have a question for <this person> they will answer me. <p>Value Beliefs for the Help Source</p> <ol style="list-style-type: none"> 4) The help from <this person> will be what I need to answer my question. 5) <This person> will provide me answers of high quality. 6) <This person> can give me accurate help.

Cronbach’s α for our developed measures of Expectancy Beliefs for Help Sources items was 0.93 and for Value Beliefs for Help Sources, $\alpha = 0.96$, indicating excellent internal consistency. Survey items for each experimental instance were combined into a single scale item representing evaluation anxiety, expectancies, values, and intention to seek help from the particular help source. Figure 4 shows the median and quartile values of the response scales as a boxplot.

The above survey items were preceded by a Helper Screenshot, as in Figure 2, which were in turn preceded by the following hypothetical framing: “You are enrolled in an online course and are having difficulty with one of the assignments. You decide to seek assistance from some of your peers. You submit your question to the online course website and the course system recommends you ask the following fellow student:”

Statistical Approach

All analyses connecting categorical experimental manipulations to numerical beliefs scales were performed as an ANOVA with RespondentID as a random effect to account for the within-subjects experimental design. Since each participant saw all four of the sentence manipulations (control, expectancy, value, and cost), the categorical condition variable had three degrees of freedom. Analyses connecting the theory beliefs scales to intention to seek help were performed as a linear regression with RespondentID as a random effect as well. Post-hoc analyses connecting levels of variables to outcomes were performed via Student’s t-tests.

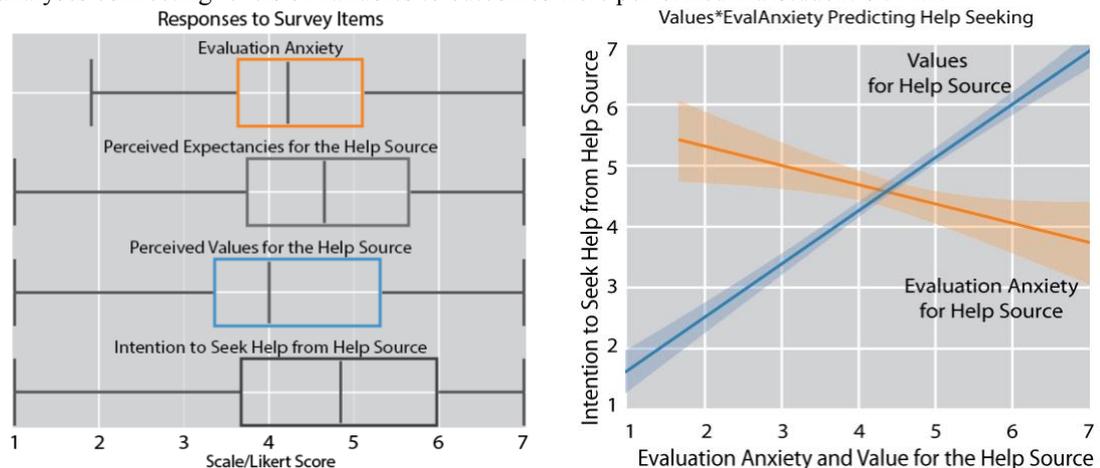


Figure 4. On the left, a box plot showing aggregate median responses and quartiles for survey scales.

Figure 5. On the right, a line of fit with confidence of fit shading showing a significant interaction between values for the help source and evaluation anxiety on intention to seek help.

Results

In general, as shown in Figure 3, our hypotheses were mostly supported, except the Value Sentence manipulation impacted expectancy for the help source beliefs, just as much as the Expectancy Sentence manipulation did. Statistical relationships are reported underneath the hypotheses in the Research Hypotheses.

There was also a significant interaction between the evaluation anxiety and [positive] values for the help source variables on intention to seek help, $\beta = .12$, $t(210) = 2.47$, $p = 0.01$, as shown in Figure 5. As the values for the help source rise, the perceived evaluation anxiety caused by that help source decreases, although less steeply. This suggests that when students believe a helper will provide good quality help, they are also slightly less afraid of being evaluated by that helper, therefore evaluation anxiety for the help source may very well be functioning as a negative value belief.

Trautwein et al. (2012) suggests that expectancies and values in a domain-centric Expectancy Value Theory model should contain an interaction between expectancy and value with an enhancing effect. A marginal interaction between expectancies and values for the help source was found, $\beta = -0.03$, $t(200) = -1.69$, $p = 0.09$, $R^2=0.86$. However, if the interaction term had an enhancing effect, the lines in Figure 6 would fan outwards. Instead, only some of the lines fan. It appears that the value beliefs for the help source hit a 1.73 standard deviation maximum, and a ceiling effect occurred, preventing a clear enhancing interaction from occurring.

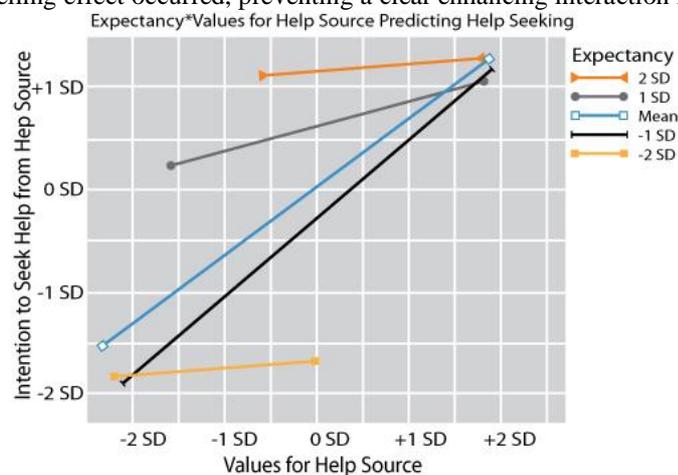


Figure 6. Expectancy and Value predicting Help Seeking shown as standard deviations from the mean.

Limitations

This survey experiment employed the use of a hypothetical online classroom and assumed the participant had a hypothetical question to ask in order to provide context for selecting a helper. While our results provide some confidence in the environmental validity of this method, the ecological validity might be questionable. Furthermore, each manipulation only had one sentence, and so respondent beliefs might be in response to the phrasing of the question and not the larger theory manipulation the sentence was designed to represent. Response bias is also a possibility in survey experiments, and so future work includes replicating our results.

We were unable to manipulate Value Beliefs for the Help Source separately from Expectancy Beliefs for the Help Source. A few possible explanations consist of: (1) the Expectancy Beliefs items could be inaccurately constructed, (2) the value manipulation sentence was inaccurately constructed, or (3) the Expectancy Value Theory for Help Sources requires refinement. It may not be possible to realistically manipulate value beliefs separately from expectancy beliefs for the help source. Future work should investigate the design of manipulatives that can impact values for the help source beliefs separately from expectancies.

While an enhancing interaction between expectancies and values for the help source was expected, the marginal interaction did not fulfill this enhancing relationship. A ceiling effect is likely a partial explanation.

Future Work

While this survey experiment provided strong evidence in support of EVT-HS and evaluation anxiety as impacting intention to seek help, next steps involve a second survey experiment using a different help seeking context to provide for more generalizability. Also, investigating these constructs in a live learning environment could reveal EVT-HS's environmental validity. We have a peer helper suggestion system for online courses to which we plan to apply this newfound understanding of help seeking. Future work should also include the development of more sentence manipulatives to better operationalize the effect on EVT-HS beliefs.

Conclusion

From our results, we see that the Expectancy-Value Theory for Help Sources impacts self-reported help seeking outcomes. Our survey experiment shows that raising perceived expectancies and values for a help source significantly predicts a student's intention to seek help. Our results also show that evaluation anxiety, as a potential negative value, inversely predicts intentions to seek help from a particular source. This initial evidence supports Expectancy Value Theory for Help Sources in its proposed form.

However, value beliefs for the help source are difficult to manipulate separately from expectancy beliefs. A student could believe that if resource A gives good quality help, then they probably are available to give help. From a practical standpoint, this is less of an issue, as course designers and instructors can focus on creating a learning environment that raise either (or both) expectancies or value beliefs for the help source to garner a positive impact on help seeking. From a theoretical standpoint, the fact that values cannot be easily manipulated separately from expectancy beliefs for the help sources suggests that Expectancy Value Theory for Help Sources might require some refinement to be more useful in explaining the specifics of seeking help from a particular source. The hypothesized relationship between our measures of expectancies, values, and costs to intention to seek help was supported, which implies that it is not purely a question of theory, but a matter of manipulating the theory beliefs in a real-world setting.

Overall, in this paper, we have provided initial evidence in support of expectancies, values, and evaluation anxiety beliefs as influencing whether people seek help from a particular helper. Our results also emphasize that learning experience designers incorporate awareness of student evaluation anxieties into their courses, as it can impact help seeking as well.

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