# Online Discussion Forum Help-Seeking Behaviors of Students Underrepresented in STEM

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**Abstract**: Underrepresented (UR) students face barriers to help-seeking in traditional classrooms. We predicted these barriers would be ameliorated online. We analyzed online course discussion boards and found UR students asked for help more often than non-UR students and women were more likely than men to ask for help explicitly at least once. Furthermore, not help-seeking was related to worse course grades. These results suggest the online setting may decrease barriers to help-seeking for underrepresented students.

## Introduction

Help-seeking has been associated with academic success (e.g., Schenke, Lam, Conley, & Karabenick, 2015). However, some students find asking for help threatening because it may threaten their self-image (Er et al., 2015), preventing them from taking advantage of this useful tool. In face-to-face classes, students from traditionally underrepresented (UR) demographic groups (in STEM courses, women, first-generation college students, and underrepresented racial minorities) may face more of these kinds of barriers than non-UR students, as they may be reluctant to draw attention to themselves and elicit stereotype threat (e.g., Steele, 1997; Ryan et al., 2009; Schwartz et al., 2018). However, we predicted that these barriers to help-seeking might be alleviated in online courses, which provide both greater anonymity and a normalized way to ask for help through required discussion forums.

To explore the possibility that online courses provide access to help-seeking for UR students , we investigated UR students' help-seeking in an online, college-level STEM course, and we investigated whether the documented benefits of asking for help in face-to-face contexts (e.g., Schenke et al., 2015) apply to this online context. Specifically, we asked: (1) Do UR-STEM students and non-UR-STEM students seek help at different rates? Particularly, given that gender roles may discourage men from asking for help (Kessels & Steinmayr, 2013), and women may also be reluctant to ask for help for different reasons, we first ask whether men and women seek help at different rates. We then ask whether other-UR-STEM (racial/ethnic minority or first-generation) students seek help at different rates than non-UR-STEM students. And (2) How is help-seeking related to success in the course (i.e., related to their grade in the course)?

## Methods

We analyzed help-seeking behaviors from 2,569 forum posts from an online STEM course, with at total of 456 total students across 7 semesters. Because we thought there might be differences in how explicitly students reach out to the community for help, we used grounded theory (see Corbin & Strauss, 2008) to analyze student responses for explicitness of help-seeking and devised a coding scheme to capture different levels of explicitness in seeking help, identifying 4 levels:

HS:0 – No Questions & No Help-Seeking (No questions, no mention of uncertainty)

HS:1 – Question Asked, but no Appeal for Help (Contained questions or indicated uncertainty without indicating struggle or recognition of the community)

HS:2 – Implicit Appeal for Help (Asked a question or indicated uncertainty and indicated struggle &/or recognition of the Community)

HS:3 – Explicit Appeal for Help (Directly asked for help or indicated they needed a response)

## Results and discussion

The relationship between gender and having ever asked for help was not significant ($X^2$ (1, N = 456) = 2.51, $p$ = .11); however, the relationship between gender and having ever *explicitly* asked for help was significant ($X^2$ (1, N = 456) = 4.87, $p$ = .03). The odds that a woman ever explicitly asked for help was 1.57 times the odds for a man; that is, women were more likely than men were to have asked for help explicitly at least once.

We found no relationship between UR status (UR race/ethnicity and/or first-generation college student) and having ever asked for help (HS:1, 2, or 3; $X^2$ (1, N = 456) = 1.66, $p$ = .20). To examine asking for help as a function of UR status, we fit log-linear models with a negative binomial distribution to the frequencies, with UR status as an explanatory variable. The model fit the data well (likelihood ratio goodness-of-fit statistic $G^2$ = 426.13, $df$ = 454, $p$ = .82), and UR status was significant ($z$ = 2.66, $p$ = .01): UR students sought help more often than non-UR-students. Specifically, the mean number of times UR students sought help was 1.57 times the mean for non-UR students.

Because grades are ordered categorical variables and the proportional odds assumption held ($G^2$ = 5.26, $df$ = 2, $p$ = .07), we fit proportional-odds models to grades, where the explanatory variables were the number of times each of the 4 types of help-seeking behavior occurred. Only non-help-seeking (HS:0) was significant; thus, our final model only included non-help-seeking as an explanatory variable ($z$ = 2.3, $p$ = .02). The odds ratio for non-help-seeking for grades was exp(-0.03) = .97; more non-question posts were associated with lower grades.

In summary, we found that UR students asked for help more often than non-UR students, and women—whom we analyzed separately from other UR students—were more likely than men to ask for help explicitly at least once. We also found a relation between not help-seeking and getting lower grades, for both UR and non-UR students.

Our findings present a complex picture of how help-seeking may act in the online space. We see evidence that *non*-help-seeking behavior could be related to lower grades. We also found that UR students did not shy away from asking for help. In this way, we provide evidence that the online space may act to diminish barriers to success, especially for students traditionally underrepresented in STEM. Future research could further examine opportunities to seek help so that those students needing help ask for and get the help they need in online course contexts.

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