

STRETCHING THE LIMITS IN HELP-SEEKING RESEARCH: THEORETICAL,
METHODOLOGICAL, AND TECHNOLOGICAL ADVANCES

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Guest editorial

Stretching the Limits in Help-Seeking Research: Theoretical, Methodological, and
Technological Advances

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Abstract

This special section focuses on help seeking in a wide range of learning environments, from classrooms to online forums. Previous research has rather restrictively focused on the identification of personal characteristics that predict whether or not learners seek help under certain conditions. However, help-seeking research has begun to broaden these self-imposed limitations. The papers in this special section represent good examples of this development. Indeed, help seeking in the presented papers is explored through complementary theoretical lenses (e.g., linguistic, instructional), using a wide scope of methodologies (e.g., teacher reports, log files), and in a manner which embraces the support of innovative technologies (e.g., cognitive tutors, web-based environments).

Keyword: Classroom-based research; Help-seeking; Help-seeking process, Technology-supported learning environments

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1. Aim and scope of the special section

There is ample evidence to suggest that help seeking is important for learning outcomes and success in academic settings (Karabenick & Knapp, 1988; Nelson-Le Gall, 1981; van der Meij, 1988). Good learners (e.g., self-regulated learners) are able to identify when they need help and where to seek it as well as how to adapt the help received and evaluate the results (Karabenick & Newman, 2009; Nelson-Le Gall, 1981; Puustinen, Kokkonen, Tolvanen, & Pulkkinen, 2004). Personal characteristics (e.g., prior knowledge, achievement level, personal goals) that are predictive of whether learners seek help or not have been identified in previous research (Arbreton, 1998; Karabenick & Knapp, 1991; Newman, 2000; Ryan, Pintrich, & Midgley, 2001). From a theoretical perspective, the field has greatly benefited from a focus on learning abilities at the level of the individual and an emphasis on questionnaire methodologies which aim to examine the cognitive, motivational, and emotional basis of help-seeking behaviour and its avoidance. However, this rather restrictive research approach to help seeking has recently begun to give way to considerable theoretical, methodological, and technological advances. Help seeking is increasingly being viewed as being socially interactive in terms of learners needing to approach others in order to receive help (Karabenick & Newman, 2009). The fact that approaching others with help requests may be especially challenging for some learners may partially explain help-seeking avoidance, in particular in face-to-face situations (see Ryan et al., 2001). The availability of computer-based sources of help might therefore result in a reduction of the social barriers which can prevent help seeking and in turn increase the amount of help sought. Although different learning environments now offer support in various forms with respect to standard-feature help

functions, it has been shown that learners often do not take full advantage of these functions (Alevén, Stahl, Schworm, Fischer, & Wallace, 2003). While new technology sets challenges for help-seeking research, it also offers new opportunities for help seeking (see also Puustinen & Rouet, 2009). Moreover, instructional approaches comprising interventions which aim to facilitate learners' help seeking are increasingly gaining in importance. Partly as a consequence of this, growing emphasis has been placed on the interaction between characteristics of the learning environment and learners' resources. This includes the examination of help-seeking behaviour under different forms of instruction as well as investigations of the role of the teacher, peers, and other resources in the help-seeking process.

From a methodological perspective, several important developments can be identified. In addition to questionnaires, researchers in the field have increasingly begun to apply behavioural methods, including teacher reports on learners' help seeking, classroom observation studies including video analyses, and analyses of online communication data and log files which aim to more directly capture learners' help-seeking behaviours under different conditions. Moreover, the development of help-seeking strategies over time is increasingly being examined in long-term analyses.

From a technological viewpoint, help seeking has traditionally been studied in the context of computer-supported learning, in particular with intelligent tutoring systems (Alevén & Koedinger, 2000; Wood & Wood, 1999). In the field of technology-supported environments, there has been a trend towards enhancing learners' help-seeking behaviour in such environments by embedding different kinds of support and instructions, for example, prompts and hints on how to look for help and how to evaluate the usefulness of the help received. Bringing technology into the classroom or the home (formal and informal learning situations) may even increase opportunities for help seeking; learners can, in principle, search for help online whenever required. So far, very little research has examined the influence of

complex technology-supported environments on help-seeking processes when individuals interact with peers in small groups, with the teacher, or with the whole class in a “plenary” setting or the impact of environments with different forms and levels of support and instruction on learners’ help-seeking behaviour (see also Karabenick & Newman, 2009). Even less research has investigated help-seeking behaviour in informal learning situations. In such situations, technology offers new possibilities for approaching different help resources outside of the classroom.

This special section includes excellent examples of theoretical, methodological, and technological advances that stretch the boundaries of help-seeking research as well as two commentaries that identify common themes, potential innovations and possible limitations in help-seeking research.

2. Overview of the studies

Ryan’s and Shin’s study (this issue) makes a theoretical contribution to the literature on goal orientation by investigating the role played by help seeking in learners’ academic efficacy and achievements over an extended period of time. Ryan and Shin particularly focus on two types (avoidant vs. adaptive) of help-seeking behaviours in secondary school, sixth-grade classrooms over the course of a school year. Their study consists of 217 learners whose grades were collected at the beginning and the end of the school year. Learners completed surveys assessing academic self-efficacy and social achievement goals (such as demonstrating social desirability and obtaining positive judgments from others) midway through the school year. Help-seeking behaviour was assessed based on the reports of two teachers after approximately 90 lessons rather than on learners’ self-reports. The study reveals a positive association between learners’ degree of self-efficacy with respect to their schoolwork and their academic achievement. Learners showing adaptive help-seeking behaviour further scored higher in academic efficacy and achievement as compared to those showing avoidant

help-seeking behaviour. Learners with adaptive help-seeking behaviour were also less worried about being popular among their fellow learners than those with avoidant help-seeking behaviour. Based on this study, Ryan and Shin conclude that learners' prior achievement level, self-efficacy, and social demonstration-approach goals serve as predictors of help-seeking behaviour over a rather short time frame. Self-efficacy can be seen to support learning through help seeking. Learners with high self-efficacy, for example, generally try to solve tasks on their own but are prepared to engage in help seeking when it is necessary for their learning. Ryan and Shin therefore suggest that teachers might look to support learners' self-efficacy in order to improve their help seeking.

In a classroom-observation study, Mäkitalo-Siegl, Kohnle and Fischer (this issue) combine two theoretical approaches, namely help seeking and inquiry learning, in order to examine how differently structured collaborative-inquiry learning environments stimulate learners' help seeking. 54 student pairs from a middle-track secondary school worked on a physics module of the web-based inquiry learning environment. In the high-structured classroom-script condition, the inquiry process was split into different phases in which the teacher provided learners with instructions on what to do. At the end of each phase, the teacher evaluated and discussed results with the learners at the plenary level. In contrast, the teacher in the low-level classroom-script condition did not interrupt small group collaboration with instructions or evaluations at the plenary level. Using a time-sampling method, screen-capture and audio- (recording the peer discussions) videos were analysed based on Nelson-Le Gall's model of help seeking. Results reveal a substantial influence of the structure of the classroom script on learners' help-seeking behaviour and learning gains. Learners in the high-structured classroom-script condition sought less help but learnt more than those in the low-structured classroom-script condition. The authors argue that learners generally had low levels of help-seeking skills, and that they may have benefited from higher levels of teacher guidance because this script enabled them to use their cognitive resources to understand the

inquiry process and content rather than to engage in ineffective help-seeking processes. According to Mäkitalo-Siegl et al., these low levels of help-seeking skills resulted in what they term an “expertise-inhibition” effect in the classrooms with low-structured computer-supported collaborative-inquiry learning. This effect refers to barriers which prevent learners and teachers from utilising the teacher’s domain knowledge.

The paper by Roll, Alevan, McLaren, and Koedinger (this issue) also address instructional effects, with a more direct focus on help seeking at the meta-cognitive level. Their studies explore the effects of immediate meta-cognitive feedback on learners’ help-seeking behaviour in a cognitive tutoring environment. In the first study, 58 participants used the Geometry Cognitive Tutor, which provides domain-level feedback as well as on-demand hints with respect to the steps of a geometrical problem-solving task. Half of the learners worked with the Geometry Cognitive Tutor together with the Help Tutor, which provides meta-cognitive feedback on students’ help-seeking errors, and the other half worked with the Geometry Cognitive Tutor without the Help Tutor. The second study ($N = 67$, 10th-11th graders) was conducted over a period of four months. Here, learners in the control condition used only the conventional Geometry Cognitive Tutor, whereas those in the help condition used the Geometry Cognitive Tutor with extended help-seeking support, which entailed direct feedback on students’ help-seeking behaviour as well as classroom instructions regarding desirable help seeking. In both of these studies, log-file data and traditional paper-pencil tests were used to analyse learners’ help-seeking behaviour. The results of the first study show that learners who worked with the Help Tutor made less help-seeking errors and requested less bottom-out hints as compared with those who worked without the help support. This indicates that the additional help-seeking-support tool actually facilitated learners’ help seeking, by, for example, helping them to evaluate their need to seek help as well as to select effective help-seeking behaviours. In the second study, learners in the help-support condition also made less help-seeking errors than those in the control condition. These improvements in help-seeking

skills were observed after an extended period of time working with the Help Tutor. These results imply that some months are required for changes to take effect in learners' help seeking, but that these improvements subsequently prove rather persistent. In relating their findings to previously published work, the authors also address the complex relationship between improved help seeking behaviour and domain learning gains.

Puustinen, Bernicot, and Bert-Erboul (this issue) address help-seeking in the purely text-based communication of an online forum. They consider learners' help seeking to be a self-regulated learning strategy and in particular focus on linguistic aspects of help-seeking dialogues. They investigated learners' help-seeking requests with respect to the function (self-regulated vs. not-self-regulated) and the linguistic form (indirect vs. direct) of messages directed at an online expert. Data were gathered in an online forum called SoS-Math, in which seventh to ninth graders ($N = 126$) can seek help for their mathematics homework from teachers who voluntarily participate in the forum as moderator and help resource. Both learners and teachers participate anonymously in the online forum. The analysis of online messages reveals that almost 60% of the requests were categorised as self-regulated requests (such as detailed and general mathematical requests), indicating that a majority of the learners were self-regulated help seekers. 70% of the requests were of an indirect form (polite; including for example, embedded imperatives, such as "Could you help me?"), reflecting the hierarchical nature of the interaction between learners and teachers, even though learners were interacting with unknown teachers in an online setting. The combination of self-regulated help requests and indirect request forms occurred frequently in the natural data. Based on their results, Puustinen and colleagues propose that learners who sent self-regulated and indirect online requests for help also possess high-level meta-cognitive thinking skills in mathematics as well as good communication skills in traditional student-teacher situations.

The special section draws to a close with the commentaries of Stuart Karabenick and Sanna Järvelä. Stuart Karabenick (this issue) identifies classroom-based versus technology-

based approaches as two research paradigms in which different theoretical approaches and partially different methods are used to investigate very similar phenomena. Karabenick suggests that more attention should be paid to technology-supported help seeking in order to utilise promising findings on how to enhance high-level help seeking in technology-supported classrooms. He further suggests that research should focus on enhancing learners' help seeking across all segments of the help-seeking process rather than simply focusing on single segments. This might be achieved by implementing more extended interventions in help-seeking research, in order to allow comprehensive analyses of the impact of such interventions.

Sanna Järvelä (this issue) analyses the papers from the perspectives of self-regulation and (computer-supported) collaborative learning. With respect to basic processes of help seeking in groups, she recommends that help seeking should be considered more as a collective activity with socially shared regulation constituting a crucial process. With regard to interventions and scaffolding for help seeking, Järvelä suggests expanding the perspective from metacognitive and content-specific support to include motivational and emotional dimensions.

The discussants point out that the contributions of this special section broaden perspectives on help-seeking in a variety of contextual situations as well as offering new ways of approaching help-seeking, including exploring how instructions and different types of scaffolding affect learners' help-seeking behaviour. It is therefore our conviction that this special section makes important contributions to the field of learning and teaching, independent of the specific domain.

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References

- Aleven, V., & Koedinger, K. R. (2000). Limitations of student control: Do students know when they need help? In G. Gauthier, C. Frasson, & K. VanLehn (Eds.), *Proceedings of the 5th International Conference on Intelligent Tutoring Systems, ITS 2000* (pp. 292-303). Berlin, Germany: Springer Verlag.
- Aleven, V., Stahl, E., Schworm, S., Fischer, F., & Wallace, R. (2003). Help seeking and help design in interactive learning environments. *Review of Educational Research, 73*(3), 277-320.
- Arbreton, A. (1998). Student goal orientation and help-seeking strategy use. In S. A. Karabenick (Ed.), *Strategic help seeking: Implications for learning and teaching* (pp. 95-116). Mahwah, NJ: Erlbaum.
- Järvelä, S. (this issue). How does help seeking help? – New prospects in a variety of contexts. *Learning and Instruction*.
- Karabenick, S. A. (this issue). Classroom and technology-supported help seeking: The need for converging research paradigms. *Learning and Instruction*.
- Karabenick, S. A., & Knapp, J. R. (1988). Help seeking and the need for academic assistance. *Journal of Educational Psychology, 80*(3), 406-408.
- 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.
- 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* (pp. 25-48). Goettingen, Germany: Hogrefe & Huber.
- Mäkitalo-Siegl, K., Kohnle, C., & Fischer, F. (this issue). Embedding computer-supported collaborative inquiry learning in differently structured classroom scripts: Effects on help-seeking processes and learning outcomes. *Learning and Instruction*.
- Nelson-Le Gall, S. (1981). Help-seeking: An understudied problem-solving skill in children. *Developmental Review, 1*, 224-246.
- 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.
- Puustinen, M., Bernicot, J., & Bert-Erboul, A. (this issue). Written computer-mediated requests for help by French-speaking students: An analysis of their forms and functions. *Learning and Instruction*.
- Puustinen, M., Kokkonen, M., Tolvanen, A., & Pulkkinen, L. (2004). Children's help seeking and impulsivity. *Learning and Individual Differences, 14*(4), 231-246.
- Puustinen, M., & Rouet, J.-F. (2009). Learning with new technologies: Help seeking and information searching revisited. *Computers and Education, 53*(4), 1014-1019.
- Roll, I., Aleven, V., McLaren, B. M., & Koedinger, K. R. (this issue). Improving students' help seeking skills using meta-cognitive feedback in an intelligent tutoring system. *Learning and Instruction*.
- 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.
- Ryan, A. M., & Shin, H. (this issue). Help-seeking tendencies during early adolescence: An examination of motivational correlates and consequences for achievement. *Learning and Instruction*.

Van der Meij, H. (1988). Constraints on question asking in classrooms. *Journal of Educational Psychology*, 80(3), 401-405.

Wood, H., & Wood, D. (1999). Help seeking, learning and contingent tutoring. *Computers and Education*, 33(2), 153-169.