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Naturally occurring help-seeking exchanges on a homework help forum

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ABSTRACT

We analyzed naturally occurring help-seeking exchanges ($n = 123$) between 11th and 12th graders and mathematics teachers on a French homework help forum. The results showed that (1) most students did not adopt a self-regulated learning (SRL) attitude when approaching the teacher for the first time (i.e., they did not communicate their preliminary work on the task for which they were seeking help, and they did not formulate an explicit request for help), (2) students' SRL attitude facilitated the teacher's work, while a non-SRL attitude made the teacher's work more difficult, (3) more than one student out of four shifted from a non-SRL attitude to an SRL attitude during the help-seeking exchange, and (4) students who returned to the forum after receiving the teacher's answer typically did so in order to ask for more help. Furthermore, the classical three-part structure (i.e., opening, message, closing) of traditional social interaction was only employed by the teachers; openings and especially closings were frequently absent in the students' messages. In conclusion, the characteristics of the students' initial message seemed to determine whether the pedagogical process between the student and the teacher got off to a good start. The students' messages were different from standard written and spoken communication, tending towards abbreviated form, content, and politeness.

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1. Introduction

When faced with a (too) difficult task, students have the choice between several strategies: give up, keep on trying, search for information on the Internet, seek help, etc. According to current models of adaptive or "ideal" help seeking (e.g., Karabenick & Newman, 2009) a help-seeking sequence is made up of several steps. These include detecting a problem, determining the necessity of help, deciding to seek help, choosing the appropriate type of help, identifying a potential helper, soliciting help, obtaining help, and processing the received help. The last three steps—soliciting help, obtaining help, and processing the received help—deal with the actual help-seeking exchange. More precisely, in ideal help-seeking situations, students formulate targeted requests and address them to an expert (e.g., a teacher), the expert answers the students, and the students then process the obtained help in such a way that the likelihood of achieving the desired goal (e.g., completing homework, succeeding in solving a problem) is maximized, or at least increased (cf. Karabenick & Newman, 2009). This kind of help seeking can be considered to reflect a self-regulated learning attitude (cf. Puustinen, Kokkonen, Tolvanen, & Pulkkinen, 2004, for example). In fact, previous research has shown that self-regulated help-seekers do not solicit help when they are capable of solving the

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problems by themselves, and when they are not, they confine their requests to just those explanations needed (Puustinen, Lyyra, Metsäpelto, & Pulkkinen, 2008).

Perhaps the most important revolution in the 30-year history[1] of help-seeking research has been provoked by the development of information and communication technologies (ICT). Järvelä (2011) noted that learning environments and classrooms are changing and that technology and opportunities for interactions (e.g., help-seeking interactions) will multiply. This tendency is well illustrated in the volumes published by Karabenick, volumes which can be considered milestones in the help-seeking domain. Each of the first two volumes (Karabenick, 1998; Karabenick & Newman, 2006) included merely one chapter devoted to help seeking and ICT, whereas the latest volume (Karabenick & Puustinen, 2013) is entirely dedicated to the role of emerging technologies in help-seeking research and applications. Two journal special issue sections have also recently been devoted to this topic (Mäkitalo-Siegl & Fischer, 2011; Puustinen & Rouet, 2009).

Until now, help-seeking researchers have focused almost exclusively on the help seeker's characteristics, behavior, etc., and have paid very little attention to the helper's behavior and characteristics and/or the dynamics of the help-seeking interaction (cf. Makara & Karabenick, 2013). Recently, however, they have started recognizing that fully understanding the help-seeking process necessitates including both the help-seeker's and the helper's activity in the analyses. Karabenick and Puustinen (2013), for example, conclude their volume by stating that the "exponential increases in connectivity are accelerating the need for (…) the analysis of interactions in technology-mediated social networks in which help seeking may occur" (Puustinen & Karabenick, 2013, p. 277). This is in line with Wood's (2009, p. 1051) recommendation that "we may find it useful in the future to add ways of looking more analytically at the nature and structure of the interplay between help seekers and help providers."

ICT offer us efficient tools for analyzing help-seeking exchanges instead of keeping the focus solely on the help-seeker. Mazzolini and Maddison (2007, p. 212), for example, consider that as compared to "the complications of studying interactions in face-to-face education, it is relatively easy to preserve and study online forum interactions without disrupting the teaching and learning environment." Puustinen and Karabenick (2013) have further emphasized the need to develop new research designs and methods adapted to the ICT era. According to Wood (2009, p. 1049), spontaneously generated naturalistic data might "be useful as a means of exploring the extent to which the help actually offered to children is likely to have proved effective." In fact, natural data, more than any other type of data, reflect both people's actual behavior and the complexity of interactive learning situations (cf. Jang, Kim, & Reeve, 2012; Puustinen, Volckaert-Legrier, Coquin, & Bernicot, 2009). For example, Cheng, Paré, Collimore, and Joordens (2011) analyzed materials spontaneously posted in a discussion forum by volunteer undergraduate students during a psychology course and showed that students who participated in the forum (via discussions, debates, question asking, etc.) tended to have better performance in the course than students who did not participate.

It was within this context, and within the theoretical framework initiated by Nelson-Le Gall (1981), that we sought to study student help seeking. More precisely, our research aimed to fill the gap in the existing literature by analyzing help-seeking exchanges taking place between students and teachers (instead of focusing on help-seekers' activity only). We analyzed help-seeking exchanges occurring naturally and spontaneously in an ICT environment, namely a French homework help forum (see 2.1 and 2.2 for more details). In terms of Loncar, Barrett, and Liu (2014, p. 102), "if instructional intervention in forum and AOD[2] is important, as the dominant paradigm assumes, then knowing more about students help-seeking behaviors is essential." In particular, we sought to apply to the analysis of help-seeking exchanges the binary theoretical framework introduced by Puustinen, Bernicot, and Bert-Erboul (2011). These authors analyzed secondary school students' spontaneously occurring computer-mediated help seeking using both a self-regulated learning and a communication pragmatics framework. Given the complexity of help-seeking exchanges, we considered such a pluridisciplinary approach particularly adapted to our data. Help-seeking exchanges were defined as sequences of two or more speaking turns between a student and a teacher about one specific piece of homework.[3]

1.1. Research questions and hypotheses

What distinguishes help seeking from most self-regulated learning strategies is its *behavioral* and *social* nature (Karabenick & Newman, 2009; Puustinen et al., 2004). Pintrich (2000) has considered help seeking as a behavioral strategy in his model of self-regulated learning. In fact, seeking social assistance and processing the help provided by the expert necessarily involve the help seeker's participation (cf. Puustinen et al., 2004). In addition, unlike most self-regulated learning strategies, help seeking takes place within a situation of social interaction requiring the use of social strategies (Karabenick & Newman, 2009, 1998; Puustinen & Bernicot, 2013; Puustinen et al., 2011). Without the involvement of the helper, the help-seeking process cannot succeed.

We had several reasons for choosing to focus the present study on 11th and 12th graders' help-seeking exchanges. First of all, in the French school system, students take their high school final examination (*baccalauréat*) at the end of the 12th grade. For students, therefore, the stakes are high for these three years of high school,[4] and especially the last two, since a high school diploma is necessary for college admission. In line with this, the archives used in our study (see the Method section for more details) revealed that high school students are the most active users of the SoS-Math homework help forum. Furthermore, only a small number of studies to date have specifically analyzed help seeking in this age group. Within this context, we aimed to answer the following research questions:

[1] The publication of Nelson-Le Gall's (1981) article is generally considered as the starting point of "modern" help-seeking research.

[2] Asynchronous online discussion.

[3] By definition, the minimum was two speaking turns (i.e., the request for help formulated by the student, and the answer formulated by the teacher), and the maximum observed in our data was 7 speaking turns. In this first study, we included the first three speaking turns (or two when there were only two speaking turns) in our analyses.

[4] In France, high school (*lycée*) begins the year the students turn 15 and lasts 3 years. The first year of high school (10th grade) is called *seconde*, the second year (11th grade) is called *première*, and the third year of high-school (12th grade) is called *terminale*.

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