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Written computer-mediated requests for help by French-speaking students: An analysis of their forms and functions

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Abstract

The present study regarded the self-regulated versus not-self-regulated function and the indirect vs. direct (i.e., polite vs. impolite) linguistic form of middle school students' requests for help. Natural data (149 requests were sent via an online homework-help forum by French-speaking seventh to ninth graders) was used. Nearly 60% of the requests were self-regulated and 70% were indirect (polite). Moreover, self-regulated functions (detailed or general requests about mathematics) were frequently combined with indirect request forms (embedded imperatives, question directives, or hints), suggesting that these students were capable of metacognitive reflection on their homework and followed the pragmatic communication rules of traditional student-teacher situations.

Keywords: Request for help; Help seeking; Self-regulated learning; Pragmatics of communication; Computer-mediated communication

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1. Introduction

The Internet and other remote communication devices have profoundly modified homework help opportunities. Obtaining help with one's homework is now possible for anyone equipped with this technology. Typing "homework help" into Google leads to millions of hits to a variety of sites including homework-help forums, blogs, live online tutoring, etc. Some analyses on written computer-mediated homework-related help seeking have already been published (Puustinen, Volckaert-Legrier, Coquin, & Bernicot, 2009).

In a related domain, recent research on communication pragmatics in educational contexts (Biesenbach-Lucas, 2007; Block, 2002; Volckaert-Legrier, Bernicot, & Bert-Erboul, 2009) has provided evidence that written computer-mediated communication has some peculiarities that distinguish it from traditional, face-to-face communication. However, these studies, which have mainly focused on the written form (spelling mistakes) or on different types of requests for help (i.e., direct vs. indirect), need to be completed by more fine-grained analyses that would allow us to determine the exact characteristics of these requests. One way of characterizing written computer-mediated help is as follows: students type a message and address it (usually anonymously using a pseudonym or their first name only) to an (unfamiliar) expert who is not physically present, instead of asking for help orally from someone who is physically present (Puustinen et al., 2009). Furthermore, contrary to oral, face-to-face requests for help, written requests are asynchronous: there is a time delay between the request and the reply.

This novel communication situation constitutes a challenge for further work in this domain because it adds a new dimension to the study of student help seeking. In fact, it is important not to lose sight of the fact that help seeking is not only a self-regulated learning strategy (Puustinen, Lyyra, Metsäpelto, & Pulkkinen, 2008), but also a situation of social interaction between two persons, a student and an expert, which necessitates the use of social strategies (Goffman, 1967). When analyzing students' written computer-mediated help seeking, researchers should therefore consider not only the characteristics related to self-regulated learning, identified by educational psychologists (such as the instrumental versus substitutive function of the requests; Nelson-Le Gall, 1981), but also the characteristics specific to the social aspects of the communication situation. The way in which the requestor approaches the situation from the social standpoint is revealed by the linguistic forms employed, which are more or less polite or more or less clear, demand respect for one's rights, ask for a favor, etc. These linguistic marks of social functioning are described in theories of communication pragmatics (Austin, 1962; Mey, 1998; Searle & Vanderveken, 1985; Verschueren, 1999).

The aim of the present study was to examine this novel pedagogical situation, namely, written computer-mediated homework-related help seeking, by analyzing not only the educationally oriented characteristics of student requests but also their linguistic forms likely to reflect the social perception of the situation by the "speaker". The question raised was: Does the computer-mediated homework-help situation involve particular functions that reflect (or do not reflect) a self-regulated learning attitude and a particular pedagogical relationship with the teacher?

1.1. Functions

The Nelson-Le Gall (1981) article constitutes a landmark in research on the function or purpose of students' requests for help. One of its major contributions was the clear distinction it made between instrumental help seeking (i.e., asking only for the explanations

needed to finish solving the problem by oneself) and executive help seeking (i.e., having someone else solve the problem in one's place).

Only instrumental help seeking, which is also qualified as adaptive, strategic, or self-regulated by the different help-seeking researchers (see Puustinen, Kokkonen, Tolvanen, & Pulkkinen, 2004), is considered to play a positive role in learning and to reflect a self-regulated learning attitude (Karabenick & Newman, 2009; Puustinen et al., 2008; see also Butler & Shibaz, 2008, for example). Self-regulated help-seekers do not ask for help when they are capable of solving the problem by themselves, and when they are not, they confine their questions to just those explanations needed (Puustinen et al., 2008). Such self-regulated help seeking is a sign that the student is able to carry out a certain degree of metacognitive reflection about the task to be performed, because confining a request to just those explanations needed to solve the problem presupposes that the student has at least some knowledge of what he/she can(not) do alone. In Puustinen's (1998, p. 280) terms, after becoming aware of their need for help, self-regulated help-seekers «question themselves (...) before deciding to ask others for help».

Another feature of self-regulated help-seekers is that they do not ask questions that are not aimed at understanding the solving process (Puustinen et al., 2008). These questions, which can be qualified as not-self-regulated, include questions aimed at avoiding the problem-solving situation and questions reflecting a lack of self-confidence (e.g., asking for confirmations such as “Is this right?” to check one's answer; Puustinen et al., 2008).

The ability to seek help first develops in children through early parent-child interactions (Puustinen et al., 2008; Puustinen & Rouet, 2009). Then when children enter school, they need to learn how to adapt their help seeking to the classroom situation. At this stage, they are supposed to become self-regulated help-seekers because “making frequent appeals to the teacher, or asking for ready-made answers, are not good strategies in the classroom” (Puustinen, 1998, p. 271). Research on this topic has shown that students' ability to engage in such self-regulated help seeking depends at least to some extent on their level of metacognitive knowledge and control, which in turn partially depend on the students' age and academic achievement (Puustinen & Rouet, 2009). Nelson-Le Gall (1987), for example, showed that with increased age (i.e., 3rd vs. 5th grade), elementary school students begin to prefer instrumental to executive help. Puustinen (1998), who compared 2nd and 4th graders' help-seeking skills, found that only high-achieving 4th graders sought help that could be qualified as self-regulated. When these students did not seek help, it was because they knew how to solve the problem by themselves, and when they did, they focused on understanding the solving principle.

The available results were obtained with elementary school students in strictly controlled experimental situations. In the Nelson-Le Gall (1987) study, for example, students were first asked to write down a preliminary answer to a vocabulary question, then had the opportunity to read the answer or hints left by another student, and finally had to write down their final answer. It is not clear to what extent these results reflect students' spontaneous help-seeking behavior in real learning situations. There are currently no studies that analyzed students' self-regulated (vs. not-self-regulated) help requests addressed to a human expert in a real learning situation (traditional face-to-face or technology-mediated). The present study analyzed a computer-mediated learning situation in which middle school students sent written requests to an unknown mathematics teacher on an online forum in order to obtain help with their homework in mathematics.

1.2. Forms

As stated in the Introduction, the linguistic form of a request reflects the way in which

the student apprehends the social relation with a teacher. The theoretical framework underlying this idea is communication pragmatics, which considers requests for help as directive speech acts¹ by which help-seekers attempt to get their interlocutor to do something (Searle, 1979; Searle & Vanderveken, 1985).

In 1977, Ervin-Tripp classified directive speech acts into six linguistic forms based on oral corpora produced by adult speakers in work situations, such as office, laboratory, and hospital (Ervin-Tripp, 1977). The six types are imperatives, embedded imperatives, need statements, permission directives, non-explicit question directives, and hints (for more details on these categories, see subchapter 2.3). This classification still remains one of the most frequently used classifications for analyzing directive speech acts in traditional communication situations with children or adolescents.

The six linguistic forms are listed above in order of directness (from the most direct to the most indirect). Requests are considered “direct” when the speaker says what he/she means (e.g., using the imperative form “close the window” to ask the other person to close the window), and “indirect” when the speaker means something else (e.g., using the hint “it’s cold” to ask the other person to close the window; Bernicot & Mahrokhian, 1989; Blum-Kulka, House, & Kasper, 1989; Ervin-Tripp, 1977). From the listener’s perspective, direct linguistic forms are more constraining – that is, less acceptable and less polite – than indirect linguistic forms (Bernicot, 1991; Goffman, 1967). The directness (vs. indirectness) and politeness (vs. impoliteness) of requests are also related to the hierarchical connection between the interlocutors; listeners with a higher social status receive more indirect and thus more polite requests than ones with a subordinate social status (Andersen, Brizuela, DuPuy, & Gonnerman, 1999).

Some studies have already analyzed pedagogical interactions in computer-mediated situations. Block (2002), for example, examined the ways students in a graduate-level “English as a second language” course use email to interact with their instructor. The results indicated that when the instructor was familiar to the students, their emails contained more grammatical errors than when the instructor was unfamiliar. In other words, they behaved in a more formal way with an unfamiliar instructor than with a familiar one. Biesenbach-Lucas (2007) analyzed the directness of the request strategies employed by students in their emails to professors, as a function of the requests’ level of imposition. Three situations (making an appointment, asking for feedback on work in progress, and requesting an extension on an assignment), varying from a low level of imposition to a high level of imposition, were considered. The results showed that the students selected more direct linguistic forms for the lowest imposition requests than for the highest imposition requests. In other words, they were more indirect when making requests for a favor than when making requests for a right. In a related domain, Volckaert-Legrier et al. (2009) asked French-speaking adolescents to introduce themselves via email to a peer and to a teacher and showed that more orthographic deviations were produced with peers than with teachers (with whom they avoided making what would ordinarily be called mistakes). The authors concluded that even though email seems to constitute a distinct written-language register for adolescents, it follows the traditional pragmatic communication rules.

None of the existing studies in this domain have analyzed request forms using Ervin-Tripp’s (1977) classification. However, the three studies mentioned above showed that the pragmatic rule governing traditional interactions, whereby one is “formal” with an unknown interlocutor of a higher hierarchical status, was maintained in computer-mediated interaction situations. Furthermore, as in traditional oral communication situations, requests for a favor in

¹ In communication pragmatics, a speech act is defined as an intentional social act realized by a speaker during the production of a message (Austin, 1962).

a computer-mediated situation are made in more indirect linguistic forms than requests for a right (Biesenbach-Lucas, 2007).

The aim of the present study was to analyze linguistic marks (i.e., request forms) in order to gain insight into the social positioning of students, vis-à-vis their teacher in the specific situation of computer-mediated, homework-related help seeking.

1.3. Research questions – Hypotheses

In the present study the self-regulatory function and the linguistic form of middle school students' written computer-mediated homework-related help seeking were analyzed. Natural data, that is, spontaneously typed requests for mathematics help addressed to a remote (online) expert via a homework-help forum, was used in order to bypass the debate related to the ecological validity of help-seeking results (see Puustinen et al., 2009). In fact, natural data «...is better at reflecting students' actual needs and behaviors than any other type of data» (Puustinen et al., 2009, p. 1041). Despite the originality of the present approach and the lack of existing results on the topic, the following research questions and hypotheses were formulated:

(a) For the self-regulatory function the research question was “Do middle school students adopt a self-regulated learning attitude in the computer-mediated homework-help situation?” In particular, do they confine their questions to self-regulated help seeking, that is, to the explanations they need (instrumental help seeking), or do they ask non-self-regulated questions aimed at avoiding the problem-solving situation (executive help seeking) and/or questions reflecting a lack of self-confidence (asking for confirmations)? On the basis of the Nelson-Le Gall (1987) study, which showed that with increased age, elementary school students prefer instrumental to executive help (see also Puustinen, 1998), it seems plausible that most middle school students are capable of self-regulated help seeking, even though Demetriou (2000) showed that planfulness, which is related to long-term or strategic self-regulation continues to develop during the middle school years. In addition, the homework-help forum's user instructions explicitly state that the teachers' role is to help the students do their homework (i.e., provide them with instrumental help), not to do the problems for them (i.e., provide them with executive help), so this environment should prompt the students to adopt a self-regulated help-seeking attitude. Therefore, the prediction was that there would be more instrumental than executive help-seeking requests; that is, more self-regulated than non-self-regulated help seeking (Hypothesis 1).

(b) For the linguistic form the research question was “In the computer-mediated homework-help situation analyzed in this study, is the student-teacher rapport hierarchical?” Existing literature on spelling mistakes (Block, 2002; Volckaert-Legrier et al., 2009) suggests that a hierarchical student-teacher rapport is in fact maintained. Based on this finding, the students should mainly employ indirect rather than direct linguistic request forms (Hypothesis 2). However, this prediction only holds if the teacher is unfamiliar to the student. Concerning the computer-mediated help seeking analyzed in the present study, there is currently no data indicating whether students consider the teacher as familiar (which might bring about direct request forms) or unfamiliar. Another consideration in an online help-seeking situation is whether students feel they are asking the teacher for a right, in which case (and in line with the findings of the Biesenbach-Lucas [2007] study) they should use mainly direct linguistic request forms.

(c) In addition, the association of form with function was analyzed in the messages in order to determine to what extent a given function is always achieved using the same linguistic form. As stated by Dillon (1982, p. 149), multidisciplinary studies in this domain

are rare even though the different lines of research on questioning «are potentially interrelated in mutually useful ways». Therefore no hypothesis was formulated.

2. Method

2.1. Participants

Natural data from the archives² of SoS-Math, a French forum offering students individualized help in mathematics, was used free of charge. A total of 126 participants ranging in age from approximately 12 to 15 years – 18 seventh graders, 41 eighth graders, and 67 ninth graders – produced a message containing a request-for-help constituent category (see Section 2.3). They used pseudonyms and, thus, remained anonymous and asexual. A small number of the messages contained several requests for help, so the number of requests included in the analyses (149) exceeded the number of messages (126). Of these, 24 (16.1%) were formulated by seventh graders, 47 (31.5%) by eighth graders, and 78 (52.3%) by ninth graders.

2.2. Procedure

French-speaking students are free to go to the forum (<http://sgbd.ac-poitiers.fr/sosmath/index.php>) whenever they feel the need, and they type their messages online. Voluntary mathematics teachers take turns replying to the students' messages seven days a week. Both the students and the teachers use pseudonyms and thus remain anonymous. The teachers also act as forum moderators (e.g., they may decide not to display an undesirable message; Coquin, 2006). According to the rules of the forum, the teachers' role is to help the students do their homework (i.e., provide instrumental help), not to do the problems for them (see also Puustinen et al., 2009).

2.3. Coding

Following the method used in a previous study (Puustinen et al., 2009), a propositional analysis was conducted in order to cut the data into segments (called “propositions”) and then a content analysis aimed at distinguishing the different parts of the messages (called “constituents”). Each proposition was assigned to one of eight constituent categories. The eight constituent categories identified were (a) openings, (b) information about the student's identity, (c) information about the message context, (d) exercises the students had failed to do, (e) signs of preliminary personal work on the problem, (f) requests for help, (g) politeness markers, and (h) closings. For examples of messages and how they were coded, see Table 1. In this table, Message 1 is segmented into eight propositions, each of which was attributed a constituent category marked with an X. Similarly, Message 2 contains nine propositions, none of which falls into the “requests for help” category.

 Insert Table 1 about here

Because “requests for help” was the only constituent category directly related to help seeking, it was the only constituent category included in the analyses and was used as the unit of analysis. As explained above, this category – like all other constituent categories – was initially defined based on a propositional analysis (see examples of the propositional analysis

² With the permission of the Director of the Poitiers Board of Education.

and constituent categories in Table 1). For this reason, some of the items (i.e., propositions) in the request-for-help category were not complete sentences (e.g., “that you will be able to help me on this question”, or “how to do it”). To reconstruct the natural utterance in these cases, that is, an utterance that made sense, the words needed to complete the sentence were added (e.g., “I hope you will be able to help me on this question”, or “I don’t know how to do it”).

2.3.1. *Self-regulatory function*

The self-regulatory function of the students’ help requests was analyzed using categories from our previous studies (Puustinen, 1998; Puustinen et al., 2004, 2008) that were adapted to the present written, asynchronous data. These categories are:

Category 1: Detailed mathematical requests about the exercise, the solving process, or math in general, such as “It says ‘rectangle 20 of the product’, what does that mean?”, “What is the convergence point of a bisector in a triangle?”, or “Could you tell me how I should proceed in order to find the location of M?”.

Category 2: General mathematical requests about the exercise, the solving process, or math in general, for example, “How should I do it?”, “What should I do to be able to keep up with the ninth-grade math course?”, or “Could you help me to do this exercise?”.

Category 3: Answers or answer checking, which corresponds to direct requests for answers (e.g., “What is the answer to the simplification of the fraction $1 - [1/4 + 3/5 \times 4/5]$ ”, “Please suggest some answers to me”, “Would you please help me by giving me the answers to the following calculations?”) and to confirmations by way of which students check whether their answers are correct (e.g., “Is my answer right?”, “Can you confirm this for me?”, “I would like to know whether my reasoning is correct”).

Category 4: Unspecified non-mathematical requests, that is, requests that do not allow the teacher to infer what type of help is requested, for instance “Please answer as quickly as possible”, “SOS”, or “Come quickly”.

Detailed and general mathematical requests were labeled as self-regulated, and answers or answer checking, as not-self-regulated on the basis of the literature presented in subchapter 1.1. As far as unspecified non-mathematical requests are concerned, this category is a new one: there are no examples of it in analyses of the function or content of oral help-seeking data. For this reason, these requests were not labeled as self-regulated or not-self-regulated.

Interrater reliability was estimated by having two coders independently code the same randomly selected cases (approximately 10% of the data); 94% of their coding was identical.

2.3.2. *Linguistic form*

The linguistic form of the students’ requests for help was analyzed using existing classifications based on data from oral interactions between children and adults (Bernicot & Mahrokhian, 1989; Ervin-Tripp, 1977, Ervin-Tripp, O’Connor, & Rosenberg, 1982); these classifications were adapted to the written, asynchronous data of the present study. The following categories were used as variables:

Category 1: Imperatives, such as “Help me do my exercises” or “Help me”.

Category 2: Thanking imperatives, which are declarative utterances that begin with an expression of gratitude, followed by a phrase containing a verb indicating the action to be performed, the agent of the action (here, the teacher), and the beneficiary (here, the student; e.g., “Thanks for answering me” or “I would be grateful to you if you would help me”³). The writer in effect thanks his/her interlocutor in advance for satisfying the request. The linguistic form is not the imperative, but an apparently polite “anticipated” thanking revealing that the writer does not consider the possibility that the action might not be carried out. In other

³ Examples in French are “Merci de me répondre” and “Je vous serais reconnaissant de bien vouloir m’aider”.

words, the student does in fact give an “order” to the teacher who has no choice but to satisfy the request.

Category 3: Embedded imperatives, for example, “Can you help me to find...”, “Would you please explain the equations to me!!!!”, or “Could you help me?”.

Category 4: Need statements, such as “I need a little help.”, “I’d like to do some exercises on rounding and approximation”.

Category 5: Question directives, which include statements in the interrogative form that are not what they appear to be (e.g., “How can this exercise be simplified?” or “What is central symmetry?”). In other words, the question reveals the underlying request but does not state the action to be accomplished, its agent, or its beneficiary. These requests were always of the type “How can/does...?”, or “What is/are...?”.

Category 6: Hints, such as “I don’t know how to factor this” or “I’m looking for good websites on math”. In these cases, the object of the request (e.g., good websites on math) is present but the agent, the action to be performed, and the beneficiary are not stated.

A summary of the properties of these categories, which are listed here in order of linguistic directness, from the most direct (imperatives) to the most indirect (hints) on the basis of Ervin-Tripp’s (1977) classification, is presented in Table 2. Note that thanking imperatives is a category that has not been reported in previous analyses of oral data, whether in French, English, or any other language. Ervin-Tripp’s (1977) category of permission directives (e.g., “May I have the salt?”) did not appear at all in the data of the present study. Only the category “imperatives” is truly direct because of the use of the imperative verb form. The next two categories are indirect even though the agent, the object or action to be accomplished, and the beneficiary are stated. The category “thanking imperatives” is placed in second position because the thanking in advance makes the utterance very constraining to the interlocutor even though it is in declarative form. The “embedded imperatives” are placed in third position because the interrogative form does not directly evoke an order to be carried out even though it corresponds to an utterance explicitly addressed to the interlocutor. In the next three categories, at least one of the elements – agent, object or action to be accomplished, or beneficiary – is not stated. In “need statements”, the agent is absent. In the last two categories, the agent and the beneficiary are absent: “Question directives” are placed in fifth position because the interrogative form corresponds to an utterance explicitly addressed to the interlocutor, whereas the declarative form of Category 6, “hints”, corresponds to a description of the world that does not require an answer from the interlocutor. Only Categories 1 and 2 (imperatives and thanking imperatives) are constraining for the interlocutor. Categories 3 to 6 are “polite”. Category 3, “embedded imperatives”, contains conventional forms frequently used in everyday life (e.g., “Can you pass me the salt?”). Categories 4 to 6 save face for the interlocutor because he/she can interpret the utterance as not being a request (Bernicot, 1991; Goffman, 1967).

Interrater reliability was estimated by having two coders independently code the same randomly selected cases (approximately 10% of the data); 88% of the coding was identical.

 Insert Table 2 about here

2.4. Data analysis

The statistical method used to analyze the self-regulatory function and the linguistic form of the students’ requests for help, as well as the connection between the function and the form, was the chi-square test for independency, and more specifically because of the small

sample size, the Monte Carlo exact test. Cramér's \underline{V} was used as a measure of association strength.⁴ All analyses were run under SPSS software (version 15.0).

3. Results

3.1. Functions

The self-regulatory function of the requests did not differ significantly across the student grades, $\chi^2(6, \underline{N} = 149) = 3.6, p = .73$ (for observed frequencies and proportions by grade, see Table 3). An analysis of all data showed that approximately two thirds of the requests for help were either “unspecified non-mathematical” or “general mathematical”. About one request out of four was “detailed mathematical”, and less than one request out of ten fell into the “answers or answer-checking” category. A one-group chi-square test, supplemented by an analysis of the adjusted standardized residuals, confirmed that there were significant differences between categories, $\chi^2(3, \underline{N} = 149) = 32.5, p < .001$. There were fewer cases of answers or answer checking than of the other categories, and the two most frequently observed categories were general mathematical requests and unspecified non-mathematical requests.

 Insert Table 3 about here

3.2. Forms

The linguistic form of the requests did not vary significantly as a function of student grade, $\chi^2(10, \underline{N} = 149) = 10.9, p = .37$ (for observed frequencies and proportions, see Table 3). An overall analysis including all help-request forms, irrespective of grade, revealed that more than one request out of four fell into the embedded-imperatives category and nearly one request out of four was a question directive. The next most frequently observed categories were thanking imperatives, need statements, and hints. The imperative category was the least frequently observed, with less than one out of every ten requests falling into this category. A one-group chi-square test supplemented by an analysis of the adjusted standardized residuals confirmed the differences between categories, $\chi^2(5, \underline{N} = 149) = 29.1, p < .001$. The two most frequently observed categories were embedded imperatives and question directives, whereas the least frequently observed category was imperatives.

3.3. Forms and functions

Because the above results (see subchapters 3.1. and 3.2.) showed that neither the form nor the function of the requests differed significantly across grades, an overall analysis (including all requests, irrespective of grade) was conducted to test for associations between the request forms and their functions. The chi-square test was highly significant, $\chi^2(15, \underline{N} = 149) = 83.5, p < .001$ (for observed frequencies and proportions, see Table 4). The association of form with function can be qualified as very strong, Cramér's $\underline{V} = .43, p < .001$. An analysis of the adjusted standardized residuals showed, first of all, that what characterized unspecified non-mathematical requests, as compared to the other request-function categories, was that they generally corresponded to the most direct request forms (imperatives and thanking imperatives). At the same time, unspecified non-mathematical requests were only rarely found

⁴ The range of Cramér's \underline{V} is $0 \leq \underline{V} \leq 1$ for contingency tables bigger than 2 x 2 (Cramér, 1946).

in the most indirect forms (question directives and hints). The opposite was true of detailed mathematical requests, which most often corresponded to indirect request forms (question directives) and least often corresponded to direct request forms (thanking imperatives and embedded imperatives). For the general mathematical requests, an analysis of the adjusted standardized residuals yielded a more heterogeneous picture, that is, among the general mathematical requests the most frequent categories were embedded imperatives and hints, whereas the least frequent were thanking imperatives and question directives. No significant associations between form and function were observed for the answers and answer-checking category.

 Insert Table 4 about here

4. Discussion

The aim of the present study was to analyze the self-regulatory functions and linguistic forms of French-speaking middle school students' requests for help addressed to a remote (online) human tutor via a homework-help forum. The results obtained were in accordance with the second hypothesis but only partially confirmed the first hypothesis.

The first research question concerned whether students adopt a self-regulated learning attitude in the computer-mediated homework-help situation. The results were not uniform. On the one hand, the students seemed, as a whole, to be self-regulated help-seekers: a large majority avoided formulating requests qualified as not-self-regulated in the literature (i.e., answers and answer checking) and nearly 60% of the requests were either general mathematical requests or detailed mathematical requests that can be considered as self-regulated. On the other hand, 35% of the requests fell into a new, unspecified non-mathematical request category. These requests were formulated so vaguely that they did not allow the SoS-Math teacher to ascertain what type of help was being requested. Until now, the definition of self-regulated (vs. not-self-regulated) help seeking has not considered the accuracy of the requests. On the basis of the present criteria, it was not possible to label these unspecified requests as self-regulated or not-self-regulated. More research using a questionnaire or similar method that can gather information on the real use of the forum by students (on what occasions do they go to the forum, how often, how long ago, how do they represent the expert, etc.) is, therefore, needed not only to determine the reasons why so many students typed such unspecified help requests, but also to verify whether these types of requests are specific to written computer-mediated help-seeking situations. It could be, for example, that because students can ask for help anonymously and free of charge, some of them go to the forum at first to "test" it, i.e., to find out what kind of a reply will they receive if they send a vague request. Therefore, Hypothesis 1 was only partially confirmed here.

The second research question concerned whether students maintain a hierarchical rapport with the SoS-Math teacher by using indirect rather than direct linguistic request forms. The results of the present study provided evidence that the student-teacher rapport was indeed hierarchical in this computer-mediated homework-help situation. A large majority of the students avoided using the most direct linguistic forms (imperatives), and the most frequently observed linguistic forms were embedded imperatives and question directives. Thus, in line with previous research (Block, 2002; Volckaert-Legrier et al., 2009) showing that students use formal language with unknown teachers, making only a few spelling mistakes when addressing these teachers, the results of the present study showed that students also use another device to maintain a formal rapport with unknown teachers: they use polite, indirect linguistic request forms. On the other hand, help provided via the SoS-Math forum

can be considered a right: the teacher's role here is to answer the students' requests. If the students had put emphasis on this aspect of the situation (a "right"), then they would have formulated direct requests, because whenever the "asking for a right" rule conflicts with the "asking a person with a higher social status" rule, it is the latter rule that takes precedence (see Biesenbach-Lucas, 2007). In other words, even though the teacher was physically absent and the interlocutors were unknown to each other, the students spontaneously adopted the pragmatic communication rules of traditional, pedagogical student-teacher situations: more than 70% of the requests were expressed in a conventional politeness form (20% embedded imperatives) or in a form that allowed the interlocutor to save face (50% need statements, question directives, and hints). Finally, as above for the request functions, the analysis of the request forms revealed the existence of a new, rather direct category, "thanking imperatives", which represented 20% of the requests formulated. Again, more research is needed to better define this new linguistic form and to find out whether it is specific to the computer-mediated situation used for the present study.

The last research question concerned the association between the self-regulatory function and the linguistic form of the students' requests. The analyses revealed that these two facets of the requests were strongly linked. Two main associations between form and function were found, namely "linguistically direct, unspecified non-mathematical requests", and "linguistically indirect, detailed mathematical requests". The first association (linguistically direct, unspecified non-mathematical requests) is difficult to interpret because, as pointed out earlier, "unspecified non-mathematical requests" is a new category that cannot be qualified as self-regulated or as not-self-regulated on the basis of the present research. The direct linguistic form of these requests, which reflects the fact that the middle school students did not situate themselves within a pedagogical student-teacher rapport, is consistent with the above interpretation according to which unspecified non-mathematical requests are designed to test the forum rather than to actually obtain help.

The second main strategy observed here was to make linguistically-indirect, detailed mathematical requests: students who made the most detailed mathematical requests used the most linguistically indirect request forms. It appears as if these students, whose help-seeking behavior can be qualified as self-regulated, knew exactly what they needed to finish their homework by themselves and also very clearly placed themselves in a pedagogical student-teacher relation where they (linguistically) recognized the teacher's higher hierarchical status. In sum, more research is needed to fully understand the nature of the new form and function categories, especially unspecified, non-mathematical requests. An important question that deserves attention in future research concerns the effectiveness of the different associations between form and function. This issue could be addressed, for instance, by analyzing teacher reports on student help-seeking (see Ryan & Shin, **PROVIDED BY ELSEVIER**, for example) or by gathering information about students' reactions to the teacher's response by analyzing student-teacher interactions beyond the first request-response exchange.

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Table 1
Two examples of the propositional analysis^a and constituent categories

Messages cut into propositions	Constituent categories							
	Openings	Student's identity	Context	Exercise	Personal work	Requests for help	Politeness markers	Closings
Message 1 (8 propositions)								
Bonjour [hello]	x							
je suis un élève de 5ème, [I'm a 7th grader,]		x						
je ne sais pas [I don't know]			x					
comment simplifier cet exercice: [How can this exercise be simplified:]						x		
$B = 5b + (2 - 3b) - (b - 3)$				x				
en espérant votre réponse, [Hoping you will answer me,]						x		
Merci d'avance. [Thank you in advance.]							x	
A Bientôt j'espère... [See you soon I hope...]								X
Message 2 (9 propositions)								
Bonjour, [hello,]	x							
je dois écrire a racine carré de 5 avec a entier: [I have to write a square root of 5 with a whole number:]				x				
$A = 3$ racine carrée 20 + racine carrée 45 [A = 3 square root of 20 + square root of 45]				x				
je propose [I suggest]					x			
$A =$ racine carrée 9 X 20 + racine carrée 45 [A = square root of 9 X 20 + square root of 45]					x			
$A =$ racine carrée 180 + racine carrée 45 [A = square root of 180 + square root of 45]					x			
apres je ne sais pas [after that I don't know]			x					
je bloque [I'm stuck]			x					
merci de votre aide [thank you for your help]								x

The original French messages are presented as such, that is, spelling mistakes, incorrect capitalization, typing errors, etc. are not corrected.

^a The coding scheme is available from the first author upon request.

Table 2
Properties of the six linguistic forms of the students' requests for help


Linguistic form (and linguistic mood)	Example	Locutionary value	Illocutionary value	Presence (+) vs. absence (-) of elements	Direct vs. Indirect
Imperatives (mood: imperative)	Help me calculate these fractions.	Explicit request to perform an action	Request to perform an action	Agent: + Object/action to be performed: + Beneficiary: +	DIRECT
Thanking imperatives (mood: declarative)	Thanks for helping me calculate these fractions.	Thanking in advance for performing an action	Request to perform an action	Agent: + Object/action to be performed: + Beneficiary: +	
Embedded imperatives (mood: interrogative)	Can you help me calculate these fractions?	Question about the possibility of performing an action	Request to perform an action	Agent: + Object/action to be performed: + Beneficiary: +	
Need statements (mood: declarative)	I need help for calculating these fractions.	Expression of the need for an action	Request to perform an action	Agent: - Object/action to be performed: + Beneficiary: +	
Question directives (mood: interrogative)	How are these fractions calculated?	Question about an action	Request to perform an action	Agent: - Object/action to be performed: + Beneficiary: -	
Hints (mood: declarative)	I don't know how to calculate these fractions.	Declaration about an activity of the requester	Request to perform an action	Agent: - Object/action to be performed: + Beneficiary: -	

Table 3
Observed frequencies (and percentages) of forms and functions by student grade

Variable	Observed (%)			
	Seventh grade (<u>n</u> = 24)	Eighth grade (<u>n</u> = 47)	Ninth grade (<u>n</u> = 78)	Total (<u>n</u> = 149)
Function				
Detailed mathematical requests	7 (29.2%)	11 (23.4%)	19 (24.4%)	37 (24.8%)
General mathematical requests	9 (37.5%)	15 (31.9%)	26 (33.3%)	50 (33.6%) ⁺⁺
Answers and answer checking	0 (0.0%)	2 (4.3%)	7 (9.0%)	9 (6.0%) ⁻⁻
Unspecified non-mathematical requests	8 (33.3%)	19 (40.4%)	26 (33.3%)	53 (35.6%) ⁺⁺
Form				
Imperatives	1 (4.2%)	4 (8.5%)	4 (5.1%)	9 (6.0%) ⁻⁻
Thanking imperatives	6 (25.0%)	12 (25.5%)	12 (15.4%)	30 (20.1%)
Embedded imperatives	3 (12.5%)	10 (21.3%)	27 (34.6%)	40 (26.8%) ⁺⁺
Need statements	6 (25.0%)	5 (10.6%)	8 (10.3%)	19 (12.8%)
Question directives	5 (20.8%)	10 (21.3%)	20 (25.6%)	35 (23.5%) ⁺⁺
Hints	3 (12.5%)	6 (12.8%)	7 (9.0%)	16 (10.7%)

⁻⁻ The value of the adjusted standardized residual was less than -1.96.

⁺⁺ The value of the adjusted standardized residual was greater than 1.96.

Table 4
Observed frequencies (and percentages) of the forms of students' requests by function

Form	Function			
	Detailed mathematical requests	General mathematical requests	Answers or answer checking	Unspecified non-mathematical requests
Imperatives	0 (0.0%)	2 (4.0%)	0 (0.0%)	7 (13.2%) ⁺⁺
Thanking imperatives	2 (5.4%) ⁻⁻	5 (10.0%) ⁻⁻	1 (11.1%)	22 (41.5%) ⁺⁺
Embedded imperatives	3 (8.1%) ⁻⁻	23 (46.0%) ⁺⁺	2 (22.2%)	12 (22.6%)
Need statements	3 (8.1%)	5 (10.0%)	3 (33.3%)	8 (15.1%)
Question directives	22 (59.5%) ⁺⁺	6 (12.0%) ⁻⁻	3 (33.3%)	4 (7.5%) ⁻⁻
Hints	7 (18.9%)	9 (18.0%) ⁺⁺	0 (0.0%)	0 (0.0%) ⁻⁻
Total	37 (100%)	50 (100%)	9 (100%)	53 (100%)

⁻⁻ The value of the adjusted standardized residual was less than -1.96.

⁺⁺ The value of the adjusted standardized residual was greater than 1.96.