Clicking for Help

Trude Heift
Simon Fraser University, Canada

Abstract
This study investigates help access in the E-Tutor, a web-based CALL program for L2 German. In fall 2011, we collected data from 198 beginner learners of German who worked on four different activity types for which the system provided a context-sensitive help link on the most commonly made error unique to each exercise. To determine the most common error, a learner corpus of 5000 previous users of the E-Tutor was constructed and statistical analyses were applied. The help link was then displayed as part of the preemptive feedback that the system provided. Study results indicate that learners’ help access varies across activity types with the most specific, informative and relevant link being accessed most frequently. Nevertheless, our log data also indicate a fairly limited use of the help options by our learners thus confirming previous research results.

Introduction
When learners engage in a Tutorial CALL activity it is especially important that the CALL program provides help options for a learning task because in Tutorial CALL, students most commonly work individually as opposed to collaboratively. In the absence of context-sensitive help that is aimed at lexical and/or grammatical difficulties unique to each exercise, learners might get easily frustrated. As a result, they might not work through the learning activities as intended, which eventually may impact their learning progress.

The following research describes an ICALL program, the E-Tutor, which provides help options for different types of learning activities as part of the preemptive feedback that the system displays for each exercise and activity type. According to Ellis, Basturkmen & Loewen (2001), preemptive feedback initiates a focus-on-form phase so that learners receive relevant meta-linguistic information before difficulties happen. This may not only lead to more successful task completion but also reduce potential frustration by marking critical features in the language task. However, preemptive feedback has not yet received due attention in CALL, possibly because of the efforts involved in generating preemptive feedback in a CALL environment. For this, the CALL system must first decide on the type of information that learners should receive when attempting a language task.
In a face-to-face classroom, teachers commonly highlight linguistic forms which, based on their experience with previous learners, have proven to be difficult and problematic for most learners. For a CALL environment, however, this requires a learner corpus that consists of the input of previous users for all exercises and activity types contained in the system so that the problematic grammatical constructs and forms can be identified and communicated to the learner. But once encoded, the CALL system can display context-sensitive help for each exercise by providing lexical and/or grammatical information on the most commonly occurring errors and thus individually tailoring its help options.

However, with respect to research that focuses on help options in CALL, there are a number of unanswered questions, particularly with respect to students’ use of help options for different activity types and in the context of preemptive feedback. For instance, do students make use of the help options that are displayed as part of preemptive feedback and, if so, does the activity type have an impact on how often students request and access help? In an effort to shed more light on help options in CALL, particularly, with respect to context-sensitive help and preemptive feedback, we conducted a study with 198 L2 learners of German who performed four activity types which were embedded in a conventional university language course (13 weeks of instruction) as opposed to a laboratory, thus reflecting learners’ actual performance. The four activity types that the students completed during the course of a semester were: Dictation, Fill-in-the-blank, Sentence-building and Translation. For each individual exercise, the CALL system generated preemptive feedback based on a learner corpus of the error profiles of 5000 previous users who had used the CALL system between 2003 and 2008. The preemptive feedback for each exercise also contained a help link that provided lexical and grammatical information of the most common error. The current study investigates learner access of the help link in each of the four activity types.

In the following, we first situate our study in related CALL research by examining previous work on help options for different language skills. We then introduce our study by describing its study participants, task and methodology. The results section provides an examination of help access by also considering the four activity types under investigation: Dictation, Fill-in-the-Blank, Sentence-building, and Translation. Our discussion of the results focuses on pedagogical implications of the findings. The article concludes with a discussion of the limitations of the study and opportunities for further research.

Help Options in CALL

In an effort to study the efficacy of help options in CALL, a number of scholars have classified them into different types according to their pedagogical and/or computational roles and functions within a computer program. Pujolà (2002) defines help options as resources of the program which assist the learner in performing a task by grouping them into assistance and guidance facilities. The former provide learners with help for comprehension (e.g., dictionary, transcripts) while the latter refer to help for task execution (e.g., user’s guide, learning strategies). In
contrast, and by also addressing computational aspects, Hegelheimer (2003) differentiates between operational and task guidance. Operational guidance covers help that the user receives with respect to the software and the overall operation of a CALL program or website while task guidance refers to Pujolà’s terms of assistance and guidance facilities. More recently, and partially drawing on the works by Pujolà (2002) and Hegelheimer (2003), Cárdenas-Claro (2011) developed the CoDe Framework in which she proposes four types of help options: operational (relating to assistance with hardware and software), regulatory (relating to help options to provide opportunities for self-regulatory learning), compensatory (relating to input modifications to make it more accessible) and explanatory (relating to drawing the learners’ attention to key elements of the input). The CoDe Framework is the most recent and comprehensive classification of help options in CALL. It not only incorporates previous research on help options and thus details their strengths and weaknesses but it also suggests design guidelines for the effective implementation and use of help options in a multimedia environment based on several studies that the author conducted (see Cárdenas-Claro, 2011). The design guidelines cover issues relating to interface design, number and type of help options, etc.

From a more pedagogical and SLA point of view, the implementation of help options relates to both cognitive interactionist and input processing theories which focus on how learners process L2 input. The overall goal is to make form-meaning mappings that are essential for ultimately incorporating new items into one’s interlanguage knowledge and ability for use. More specifically, according to cognitive interactionist perspectives, interaction is the necessary mechanism for making language comprehensible (e.g., Doughty & Long, 2003; Gass 1997; Long, 1983, 1996; Mackey & Gass, 2005; Pica 1994). For CALL, this means that learner-computer interactions must support students with their language comprehension and production by, for instance, implementing help options that assist learners in performing a language task (see Heift, 2006). Help options can make key linguistic characteristics salient by highlighting and providing opportunities for repetition and modification of particular forms. In addition, they can support modified interaction between the learner and the computer by providing the learner with control over when to request help, modify responses, and get access to repetition and review (see Chapelle, 1998, 2001, 2003, 2011; Heift & Chapelle, 2011). Moreover, Input Processing Theory (VanPatten, 2007) can be applied to a range of issues in the selection of material. According to Chapelle (2011), the focus is on the nature of input and activities that are likely to prompt noticing of form-meaning mappings. In addition, learners are to primarily attend to meaning in the input they receive, and finally, input needs to be accompanied by exercises that help learners to notice specific aspects of the input.

When it comes to studies that investigated the use of help options, most research has been conducted with help options for reading and vocabulary learning, with far fewer instances in listening comprehension, grammar and writing. The studies on help options in CALL commonly employ tracking systems (e.g., Heift, 2006) or screen-capturing devices (e.g., Pujolà, 2002). Both are useful in deter-
mining what learners actually do when working on a language task in a multimedia environment (see Fischer, 2007; 2012) although, as also pointed out by Liou (2000), there are nevertheless shortcomings to these two methods. For instance, tracking tools do not include any of the user’s thought processes and, for this reason, Mackey and Gass (2005) suggest to include retrospective interviews and think-alouds to examine students’ and teachers’ perceptions and attitudes towards learning materials during and/or after CALL use. One advantage of conducting interviews is that they provide an opportunity for the researcher to observe phenomena that are not readily observable by other research methods such as tracking tools and thus a combination of those methods seems ideal. And indeed, a few studies have implemented a combination of methods of investigation. For instance, Liou (1997) as well as Grgurović & Hegelheimer (2007) combined a tracking system or screen-capturing device with oral interviews, respectively (for a more detailed discussion on methods of investigation, see Cárdenas-Claros & Gruba, 2009).

By leaving aside the research methods that have been employed in the studies of help options and focusing on the use of help options instead, quite a number of studies investigated students’ use and non-use of help options while practicing different language skills. For instance, one of the landmark studies of help options in reading comprehension and vocabulary acquisition was conducted by Chun & Plass (1996) who investigated learners’ look-up behavior and effectiveness of two types of annotations, visual versus verbal annotations. Results indicate that a combination of the two annotation types was most effective. A number of studies which examined reading and vocabulary as well as listening comprehension skills followed and they mainly examined the effectiveness of various types of multimedia annotations (e.g., Chapelle & Heift, 2009; Chun, 2001; De Ridder, 2002; Grgurović & Hegelheimer, 2007; Hegelheimer & Tower, 2004; Hernández, 2004; Hoven, 2003; Jones, 2006, 2009; Laufer & Hill, 2000; Peters, 2007; Rimrott, 2011; Yeh & Wang, 2003; Yoshi, 2006) by also considering learner variables such as working memory (e.g., Chun & Payne, 2004), gender (e.g., Grace, 2000) or proficiency level (e.g., Hoven, 2003) and investigating students’ attitudes towards help option use. For instance, Rimrott (2011) found that the input with multiple modes was generally preferred by her L2 learners of German and the software version that contained the most diverse set of help options was also most effective (see also e.g., Jones, 2003).

In contrast to the studies above, very few studies have focused on help options for grammar and writing which is the topic of the current study. However, Heift (2006), for instance, studied the effects of help options that were embedded in different feedback types. She found that her L2 learners of German relied more heavily on help options when system feedback was sparse and this was especially the case with beginner learners. Moreover, Kaur & Hegelheimer (2005) examined the use of a dictionary and concordancer during a writing task. Confirming other studies that investigated multiple help options, they found that students who had access to both a dictionary and a concordancer outperformed the groups who had access to only one of the help options, especially when it came to using new lexi-
While the studies above generally show that a variety of help options is more conducive to a successful language learning experience than any single one, there are additional issues to be considered when it comes to the use of help options. As part of an extensive review of help options in CALL, Cárdenas-Claros & Gruba (2009) state that, as software designers, we face a big challenge in creating help options that are “attractive to learners yet do not hinder learning” (p. 78) because, ultimately, this has an effect on students using help options. They suggest that help options must be made readily available such that they are never more than one click away (see also Chun, 2001; Pujolà, 2002). Moreover, Cárdenas-Claros & Gruba (2009) recommend that in order for retention to take place students must play an active part in manipulating the information embedded in the help options by, for instance, having to copy or paste it into a new location.

Accordingly, and in order to fill some of the gaps in the existing body of research, the current study investigates help options in a grammar environment. More specifically, and to address Cárdenas-Claros & Gruba’s (2009) suggestions, the help options are shown as part of preemptive feedback for each exercise and displayed as a one-click help link that provides lexical and grammatical information on the most difficult construction. The following section describes the goals of our study and its methodology and procedures.

THE STUDY

Methodology

Research Questions

Based on the research gaps identified in the previous section, our study investigates the following research questions:

Do students generally access the help link as part of the preemptive feedback provided for the four different activity types: Dictation, Sentence-building, Fill-in-the-blank, Translation? If so, are there any differences in the amount of help access across the four activity types?

Study Participants

The data were collected from 198 L2 learners of German who were enrolled in a beginner course at a Canadian university in fall 2011. The students had no prior knowledge of German when first registering in the course. Their language level was determined by university course placement.

Data Collection

To investigate help access as well as the impact of activity type students completed a total of 80 exercises (20 per activity type) spread over 4 chapters in the E-Tutor (www.e-tutor.org), an online CALL program that is integrated into the students’ regular curriculum (for a detailed description, see Heift, 2010). The E-Tutor is a comprehensive language-learning environment for German with a mul-
titude of exercises for L2 learners of all levels, from beginner to advanced. Each chapter of the *E-Tutor* corresponds to a chapter of *Deutsch: Na klar!* (Di Donato, Clyde & Vansant, 2008), a textbook commonly used in North America for L2 university learners of German. The exercises cover pronunciation, vocabulary, grammar, writing, listening and reading comprehension as well as cultural information about Germany. Students’ interaction with the CALL system was recorded throughout the semester in order to examine their responses in view of help access. Descriptive and inferential statistics were applied to examine the data.

Along with several other activity types, the four activity types considered in this study (Dictation, Sentence-building, Fill-in-the-blank, Translation) were part of students’ regular homework assignments and all activities for each chapter were available to the learners from their first login. Students completed the exercises independently and outside class time by the stipulated deadline for each chapter, which was communicated to them in the first week of classes and again before each chapter’s due date. The students were free to choose the order in which they completed the different activity types.

**Help in the Form of Preemptive Feedback**

The help provided for each exercise is part of the preemptive feedback that the *E-Tutor* provides for each activity type. Preemptive feedback draws attention to potentially problematic areas in the learner activity before a problem has occurred. Thus one might speculate that if learners receive relevant meta-linguistic information before difficulties arise this may not only lead to more successful activity completion but also reduce potential frustration by marking critical features in the language activity (see Ellis et al., 2001). Moreover, preemptive feedback may aid in providing learners with explicit knowledge, which, as Ellis (1993) has argued, constitutes a valid goal for instruction because it helps improve performance through monitoring, and facilitate acquisition through noticing.

To construct the preemptive feedback for the exercises contained in the *E-Tutor*, we created a learner corpus consisting of several million responses submitted by roughly 5000 previous learners who had completed the activity types of the *E-Tutor* between 2003 and 2008. We conducted an extensive statistical analysis for these millions of entries and, for each exercise, activity type, and chapter, we produced a ranked list of errors based on prior student performance during those years. For each error profile, we then generated preemptive feedback that the system displays when students start an exercise. For instance, example (1) shows the exercise given in Figure 2, a Sentence-building activity. Here, students are asked to construct a sentence from words that were provided in their base forms and grammatical cues.

(1)  Morgen / (def. article) / Semester / beginnen (present tense).
Morgen beginnt das Semester.

*Tomorrow starts the semester.*
Based on our statistical analysis of the submissions of roughly 5000 previous users who had completed this exercise between 2003 and 2008, the statistical analysis revealed that 40% of the student responses for this particular exercise were correct while 60% contained an error. Of the incorrect responses, the top error with 20.9% was that the sentence contained a wrong verb inflection (e.g., *be-ginnst* instead of *beginnt*). Accordingly, the preemptive feedback for the exercises in the *E-Tutor* is based on an error ranking that is created from the error profiles of thousands of previous users. It reflects the most common errors unique to each individual exercise and activity type. The information is displayed for students as part of an exercise that they attempt to solve.

In addition to identifying and displaying the top error to the learner, *The E-Tutor* also provides a context-sensitive help link for it either in the form of an inflectional paradigm, grammar notes such as explanations on word order, or in the case of a lexical or spelling error a dictionary look-up of the word (see Figure 1). As a result, the system first draws attention to the most problematic construction of a given exercise by naming and displaying the most common error for each exercise (see Figure 1). It then provides additional grammatical or lexical information on the particular construction in the form of a help link. Once the student clicks the link as provided for the most common error in Figure 1, *The E-Tutor* generates and displays the table given in Figure 2.
Accordingly, the goal of the current study is to determine if and how often students access the help link that is provided as part of the preemptive feedback for the four different activity types. As opposed to the preemptive feedback that students might or might not read, recording whether students click on the help link provides more accurate and reliable information and insight on student behavior with regards to help access.

**Four Activity Types**

For this study, we consider four activity types for which the system displayed the top error and a help link to grammatical or lexical information: Dictation, Sentence-building, Fill-in-the-blank, Translation. The students completed five exercises for each activity type in the four chapters covered in the introductory course adding up to 20 exercises per chapter and a grand total of 80 exercises per semester.

For the Sentence-building activity type (see Figure 1), students were asked to construct a sentence from words that were provided in their base forms and contained grammatical cues (for function words). For the Dictation activity type, students needed to write out a story by listening sentence by sentence to an audio recording. The fill-in-the-blank activity required students to provide a missing word in a sentence according to a prompt given in the instructions. For the Translation activity, students translated an English sentence into German.

**Data Analysis**

With respect to data collection and analysis, the E-Tutor logged student interaction with the system for all activity types, keeping track of each submission and saving it for research purposes (e.g., student ID, activity type, student input, time submitted, etc.). More importantly, the system recorded whether the student clicked on the help link that was provided as part of the preemptive feedback to access lexical or grammatical information.

We employed both descriptive and inferential statistics. For the descriptive statistics, we first counted the number of clicks for each individual exercise. The
inferential statistics required a calculation of the average rate of clicks for each exercise and activity type. To allow for cross-comparisons among exercises and activity types, we normalized the working style data by dividing the number of clicks for each exercise by the total number of study participants (N = 198), which equals the total number of possible clicks per exercise. For the inferential statistics, we applied a one-way ANOVA with the alpha level to determine statistical significance set to .05.

RESULTS

The data for our study were taken from the four activities that our L2 beginner learners of German completed throughout the semester and then normalized as described above. Table 1 displays the means and standard deviations of the learners’ accuracy rates for the four activity types.

Table 1. Mean scores of help access for the four activity types

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dictation</td>
<td>.021970</td>
<td>.0184861</td>
<td>20</td>
</tr>
<tr>
<td>Fill-in-the-Blank</td>
<td>.138384</td>
<td>.0494141</td>
<td>20</td>
</tr>
<tr>
<td>Sentence-Building</td>
<td>.102020</td>
<td>.0612363</td>
<td>20</td>
</tr>
<tr>
<td>Translation</td>
<td>.101768</td>
<td>.0517464</td>
<td>20</td>
</tr>
<tr>
<td>All Activity Types</td>
<td>.091035</td>
<td>.0636412</td>
<td>80</td>
</tr>
</tbody>
</table>

The data in Table 1 indicate that the average access rate of all activity types is 9.1%. Considering each activity type separately, our learners accessed the help link most often for the Fill-in-the-blank activity type (13.8%) followed by Sentence-building (10.2%), Translation (10.1%) and Dictation (2.1%).

For an empirical comparison of the impact of activity type and help access, we normalized the data by calculating for each exercise and activity type the means of help access and subsequently applied one-way analysis of variance (ANOVA). Results indicate that activity type has a significant effect on help access (F(3,76) = 20.983; p = .000). Applying Tukey HSD, pairwise comparisons conducted to examine the significant main effect of activity type revealed that Sentence-building, Fill-in-the-blank and Translation form a subset by resulting in significantly more help access than Dictation (see Table 2, statistically significant results indicated in bold).
Table 2. Results for pairwise comparison for the three activity types (bold = $p < 0.05$)

<table>
<thead>
<tr>
<th>Activity Type (I)</th>
<th>Activity Type (J)</th>
<th>Mean Difference (I-J)</th>
<th>Std. error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dictation</td>
<td>Fill-in-the-Blank</td>
<td>-.075</td>
<td>.015</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Translation</td>
<td>-.075</td>
<td>.015</td>
<td>.000</td>
</tr>
<tr>
<td>Fill-in-the-Blank</td>
<td>Dictation</td>
<td>.075</td>
<td>.015</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Sentence-building</td>
<td>.097</td>
<td>.015</td>
<td>.086</td>
</tr>
<tr>
<td>Translation</td>
<td>Dictation</td>
<td>.075</td>
<td>.015</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Sentence-building</td>
<td>.097</td>
<td>.015</td>
<td>1.000</td>
</tr>
<tr>
<td>Sentence-building</td>
<td>Dictation</td>
<td>-.080</td>
<td>.015</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Fill-in-the-Blank</td>
<td>-.036</td>
<td>.015</td>
<td>.086</td>
</tr>
<tr>
<td></td>
<td>Translation</td>
<td>-.097</td>
<td>.015</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Our study results indicate that, on average, our learners accessed the help links provided for the four activity types about 10% of the time. Moreover, there is a significant difference in help access with respect to the four activity types. These findings will be discussed in the following section.

**Help access by Activity Type**

In answering our research questions, our results suggest that at least our learners did not make use of the help link as frequently as one would expect or even hope for. However, our results are in line with prior studies that investigated the use of help options in CALL (Cárdenas-Claros, 2005; Chapelle, 2005; Grgurović, 2005; Hegelheimer & Tower, 2004; O’Bryan, 2005; Rivens Monpean & Guichon, 2009) and, in fact, confirm previous results of one of our own studies where learners’ help access was also somewhat limited. Unlike the current study where the help link was part of the preemptive feedback that the E-Tutor generated, Heift (2006) investigated whether students access the help link as part of the feedback that the system provides in response to learner input, that is, reactive feedback.
that is conveyed to the student after difficulties have arisen. Interestingly, while the help access in Heift (2006) was significantly higher than in the current study, it was still only 24% for the most elaborate feedback. However, the decrease in help access in the current study can be expected, at least somewhat, given that students are probably more likely to seek help after the fact than when starting an exercise, that is, at a point when they are unsure whether they might have any difficulty with a particular construction. Moreover, this finding is also in line with Cárdenas-Claros (2011) who found that regulatory help options for computer-based L2 listening tasks, that is, help options used in preparation of tasks tend to be most neglected.

More generally, and by partially drawing on the work of other scholars (e.g., Pujolà, 2002; Grgurović & Hegelheimer, 2007), Cárdenas-Claros (2011) traces limited access of help options to design issues such as ease of accessibility and use (see also Colpaert, 2004; Cushion & Hemard, 2003) but also to their usefulness, purpose, and compatibility with the task. For instance, her two studies on help options in computer-based L2 listening showed that students did not use help options for self-assessment and listening skill development but instead, for example, for language support (see Cárdenas-Claros, 2011, p. 206-209). As for our results, and, given that the help link was readily accessible and the information itself context-specific it seems that it possibly had less to do with the design of the help options per se. Instead, we might look more closely at what is at stake for the students. The E-Tutor was primarily conceived as an opportunity for students to practice course-related L2 structures in a non-threatening and flexible environment by encouraging learner autonomy and self-motivated practice. For this reason, for all activity types, students were graded on task completion and not on their linguistic performance, that is, the number of errors they made was not taken into consideration. Students were repeatedly made aware of this grading criterion from the beginning of the semester. Accordingly, and especially from an efficiency point of view, it is less time-consuming for the student to risk making a mistake and then correct it than first following a help link and reading up on the most difficult construction of each exercise not knowing whether this might indeed pose difficulty for them. For this reason, student behavior might have been influenced by the fact that they were not penalized on the number of errors they were making. More generally, however, this implies that grading, or performance-related factors might also play a role in the use of help options (see also Heift, 2005).

With respect to help access by activity type, our results suggest that students accessed the help link most frequently when working on the Fill-in-the-blank and Sentence-building exercises. This is probably due to the fact that these two activity types focus mainly on morphology and syntax where task guidance in the form of inflectional paradigms is most useful. In contrast, for the Dictation activity type our learners relied more heavily on reactive system feedback, possibly because this activity type primarily triggers spelling mistakes – even what might look like a morphological error is in fact a misspelling and, accordingly, students are less likely to examine its inflectional paradigm. Finally, the Translation activity
type mostly triggers morphological and syntactical mistakes while also causing some lexical and/or spelling errors. For this reason, the difference in help access between Sentence-building and Translation is marginal.

Interestingly, these findings are perfectly in line with a previous study by Heift (2006) that, among others, investigated the impact of activity type on help access as part of reactive feedback that the system displayed. Apparently, when it comes to help access across different activity types, the determining factor is the activity type itself rather than the kind of feedback in which the help link is embedded, that is, preemptive versus reactive learner feedback. This underlines some of the recommendations with respect to the design of help options made by Cárdenas-Claros (2011) who suggests that the information contained in the help option must be very specific, informative and relevant by also being easily accessible.

More generally, however, these results point at the complexity and the many factors that need to be considered when investigating help access in CALL. Inasmuch as activity type apparently plays a role, additional studies are needed which compare and contrast the language skill for which the help options are displayed. For instance, while most of the work with help options has been conducted in L2 reading/vocabulary environments, more studies are needed, especially with respect to help options for grammar and writing. As for the current findings, our students accessed the help links most often in those activity types that provided very specific and informative information on the most difficult construction contained in each exercise.

CONCLUSION

This study investigated help access in a CALL practice environment for L2 German. Our results indicate that students, on average, accessed the help link, which the system displayed as part of the preemptive feedback, approximately 10% of the time. Moreover, a significant difference in help access by activity type was found. The help links for the Dictation exercise were accessed significantly less often than those of the remaining three activity types, probably due to the lexical and grammatical focus of the activity types.

Following the suggestions made by other researchers (e.g., Cárdenas-Claros, 2011), the help link the E-Tutor displayed was readily accessible and the information provided was closely related and geared towards each exercise. Thus factors that previously have had an impact on the use of help options (e.g., ease of use, accessibility, relevance) were accounted for in the E-Tutor. But, nevertheless, on average our students accessed the help link only 10% of the time. A possible reason might be that we measured help access in a practice environment in which errors did not count towards the student’s course grade. Thus students might have been less likely to access help before they actually committed an error. Moreover, our study did not investigate whether help access ultimately leads to better learner performance. Instead the purpose of the current study was mainly to investigate learner behavior with respect to help options that are only one click away and provide information the student can easily copy and paste into the exercise they
are currently working on.

More research is clearly needed to shed more light on the issues that focus on help options not only from a software design perspective but also from a pedagogical point of view. But at this point it is evident that we need to pay close attention to help option design as well as train our learners with respect to the use of help options. Ultimately, this will increase learner awareness of help options and, at the same time, assist our learners in becoming more autonomous CALL users.

ACKNOWLEDGEMENTS

This research was supported by Social Sciences and Humanities Research Council (SSHRC), Canada, grant 632209.

REFERENCES


