DO WIKIS AFFECT GRAMMATICAL ASPECTS OF SECOND-LANGUAGE WRITING?

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Abstract

This paper reports on a study that investigated the use of wikis in a first-year German as a second language class. The focus of the study was to analyze students' use of grammar. Three classes of 24 students each participated in the study: one class using wikis and one class not using wikis to collaborate on two writing assignments; and one control group. Descriptive statistics as well as ANOVA were used to analyze the assignments as well as the writing components of two tests. Results showed the class using wikis benefited in their writing assignments regarding complex syntax (word order) but encountered problems with the same structures in a test. In addition, a short survey was carried out, asking students of the class using wikis about their experience, attitude and anxiety towards such a technology. Most students felt comfortable participating in a shared online writing task and thought that it helped their writing.

INTRODUCTION

The aim of this research project was to investigate grammatical structures in second language writing by students who collaborated on their writing assignments. The focus was on syntax (word order) and morphology (word endings). These are two important aspects of learning German. For example, there are several different verb groups in German whose forms change depending on how the verb is used in a sentence. There are also verbs that do change position in a sentence if used in combination with another verb. One form of collaboration was to use a *wiki*. A wiki

is a computer-mediated communication (CMC) tool which can be accessed from any computer that is connected to the Internet. It allows the leaner to work in the environment he or she prefers, for example, at home. In a sense, it is a shared blog, in which everyone who is given access contributes to it (as in Wikipedia). In first- and second-year language courses, a wiki can be used to have students collaborate on writing a story. Students can edit each other's entries and every revision of the story is recorded and available to everyone who has access to the wiki. A wiki offers the student the possibility to monitor his or her writing, as well as to learn from other students over a defined period of time.

The term *Monitoring* is borrowed from Kellog's (1996) model of writing processes. Kellog distinguishes between *Formulation* (planning ideas and goals and translating them into lexical units and syntactic codes), *Execution* (programming and executing: The output from translating is converted into sentences), and *Monitoring* (reading the produced text again and editing it). Kellog's model was developed for L1 writing, however, it has been applied in studies on L2 writing, for example by Ellis and Yuan (2004). Another term that has been used instead of Monitoring in this context is *Reflection*. This term, suggested by Hayes (1996), is described as a two- component process: Decision making and inferencing. In this paper, I will use the term Monitoring because it is used by language acquisition researchers. For example, Levelt (1989, 1992) used the term in his model of speech production and continues to use it (Levelt, Roelofs, & Meyer, 1999). In that model, the speaker continuously rehearses his speech plan until the words are articulated. While rehearsing, the speaker monitors the speech plan for inconsistencies or errors. The process of writing is similar to that explained by Kellog's (1996) model. A wiki is part of the editing process: It forces the writer to re-read and edit his or her text as well as the contributions of the other contributor(s). This is different than a text that is written in collaboration by two or more second language learners on paper. In that task, two or more learners meet face-to-face and create a text together. If the text is edited, it happens instantly. Using a wiki, however, a learner who is in a different location than the other learner(s) has to re-read what has been written up to that point in order to make changes to the text. The process of writing is different as the contributors to the wiki work in separate locations creating a text over time while going through several revisions.

The Learning Situation

As Swaffer and Arens explain in their book on foreign language curriculum (2005), the use of a CMC tool creates a new learning situation in the classroom. Studies have shown that using a CMC tool motivates students, for example by Kern, Ware, and Warshauer (2004). Another advantage is that students can use this technology to learn from each other. In a study of online writing, Spiliotopoulos and Carey (2005) reported on the different roles ESL students adopted when using electronic bulletin boards. In-person interviews revealed that students felt more comfortable and less

anxious or shy using the electronic bulletin board compared to face-to-face communication.

In regards to writing, collaborating to write a text using a wiki is a different writing process when compared to collaborating to write a text on paper as outlined above. Two aspects that are particularly different are monitoring and student-student learning. The question is whether these differences in the writing process also have an effect on the correct use of grammar in second language learning. If students learn from each other using a wiki, it could be assumed that their scores in grammar tests would improve. Two studies are of interest in this area. One was carried out by Schultz (2000) who investigated shared writing activities of intermediate and advanced students in the French Department at Berkeley. Schultz investigated content, style and grammar. The most interesting result was that at the intermediate level. The group who did not use a CMC tool, in this case Interchange, outperformed the group who did use a CMC tool in regards to content and style. In regards to grammar there were no differences between the groups. The other study was carried out by Ware and O'Dowd (2008) on the feedback advanced students of Spanish and English gave on their partners' use of the target language in a telecollaboration project. The most interesting result of this study was that students only provided feedback on grammar or style when specifically asked by the instructor to do so. The findings of these two studies indicate that student-student learning facilitated by technology was not effective.

In theory, however, the process of creating a text using a wiki is unique. The pedagogy of this approach reflects a constructivist learning situation. In the constructivist view of learning, the learner constructs his or her own knowledge. Rather than memorizing facts, the learner creates his or her own meaning from input available to him or her. This learning is understood as a continuous process to understand these very processes of construction (Novak, 1998; Novak & Gowin, 1985; Ramsden, 1992). In a classroom setting, students need regular opportunities to form their knowledge (Biggs, 1999). In particular, collaboration between students is considered to be important. Using chat and a forum, Van Deusen-Scholl, Frei, and Dixon (2005) made the following observation in a beginning and advanced German foreign language class:
Students tend to be more actively engaged in an online setting and share more of the responsibility for their learning … and become partners in the construction of knowledge and learning tasks. (p. 672)

A similar statement has been made by Seitzinger (2006) in regards to wikis, arguing that the nature of wikis as a shared tool caters to learners' construction of knowledge. As a relatively new academic tool, there is much praise for wikis as a constructivist tool (Parker & Chao, 2007), however, in-depth studies how the construction of knowledge using a wiki works are rare. For the discipline of second language learning, much research still needs to be carried out. As wikis lend themselves to teaching writing skills in particular (Lamb, 2004), it is helpful to start there. At this point in time, the question remains if the observations described above

actually lead to an improved knowledge of grammar when students use a wiki to collaborate on a writing task. Another question is if students collaborating on a wiki will retain the grammatical structures learned over time. Therefore, the particular research questions of this study were:

1. Do students using a wiki use more or less syntactic-morphological structures compared to students who do not use a wiki?
2. Do students using a wiki have a higher or lower error-ratio of syntactic-morphological structures compared to students who do not use a wiki?
3. Do students using a wiki have a higher or lower retention of syntactic-morphological structures compared to students who do not use a wiki?

Students learn syntactical-morphological structures in class but have to make the transition to correctly using those structures. This is often called the transition from comprehension to production. It is important to notice that the correct use of syntactic-morphological structures does not necessarily follow the principal of comprehension before production as Merrill Swain (2005) has demonstrated. As Swain argues, the principal of production before comprehension is of equal significance. Following either or both principles, the learner has to practice the structures. In the first case, the learner knows the rules that govern the structures he or she is practicing; in the second case, the learner practices the language without explicitly knowing the rules that govern the structures. In this context, a shared writing task is particularly helpful as each student contributes his or her knowledge of a particular morphological structure, or lack thereof, to the collaborative effort of writing a text.

METHODOLOGY

The present study looked at a beginner's level of second language learning using wikis. The language under investigation was German. Three groups of 24 students each participated in the study. The participants were enrolled in German 100A at the University of Victoria. All participants in German 100A carried out two writing assignments: "My hobby" (assignment one/75 words); "My life as a student" (assignment two/100 words). Participants of each group also wrote two tests. In each test, students had to write a paragraph on the following topics: "You are meeting your new roommate. Introduce yourself!" (Test 1, 75 words) and "My perfect week" (Test 2, 100 words). The tests were analyzed using the same criteria that were used for the writing assignments. The same research assistant marked the two writing assignments as well as the two tests. Each test was taken ten days after the writing assignment was handed in, and one week after it was marked and reviewed with the students by the teacher.

Students participating in the study had no previous knowledge of German. The study was approved by the University of Victoria's Ethics Committee and was

carried out in the fall of 2007. Instructors of German 100A met once a week to discuss teaching methods and to coordinate the course sections.

Participants of Group I collaborated on their writing assignments without using a wiki. Participants worked in groups of two, were allowed to choose their writing partner, and had five days to hand in the assignment. Participants met outside of class, for example in the cafeteria, and used paper and pencil to write the assignment together.

Participants of Group II used a wiki to collaborate on their writing assignments. Participants worked in groups of two, could choose their writing partner, and also had five days to complete the task. Throughout the five days, each of the two participants wrote on the wiki to create a text, editing and rewriting each other's sentences. A wiki can be used with many participants; for example, Schultz (2000) had three students per group in her study with intermediate and advanced learners. However, I chose to have students work in groups of two because the study was carried out with beginners and their assignments were relatively short. If the groups had been larger, there was the danger that each individual student would write very little per assignment.

Participants of Group III worked on the writing assignments on their own. Each participant had five days to complete each of the assignments at home. This group functioned as the control group.

The number of students in the three groups was 29 (Group I), 32 (Group II) and 31 (Group III). However, only the results of 24 students in each group were considered for the analysis for two reasons. One, some students missed one of the tests. Two, some students did not follow instructions for the writing assignments. Students were told to use all structures learned and apply them to their writing. The points they received were based on the combination of the number of structures used and the number of structures used correctly. The instructor gave this information to the students in class and it was also in the instructions students could read online. Some students only used one or two structures because they had learned them well. Their results could not be considered for the analysis. Taking away students for these two reasons left 24 students in Group I; 26 students in Group II; and 27 students in Group III. In order to compare the groups, the bar was set at 24 participants. In Group II and Group III, a random draw out of the 26 (Group II) and 27 (Group III) students decided which writing assignments and tests of 24 students were to be used in the analysis.

In order to familiarize students with the wikis and how to use them to fulfill the assignments, each group had a practice session in the CALL facility. The instructor, research assistant and someone from the Helpdesk of the CALL facility were present to explain the technology and answer questions. Students were divided into groups of two and used the wiki to write a couple of sentences on what they know

about Germany. It was then explained to the students that the research assistant could see any editing made by students because it was archived.

For each assignment, the wiki site gave students the following information: Topic; number of words to be written; the structures to be used; and number of maximum points. It also told students to edit each other's texts at least twice so overall each student would have logged onto the wiki at least three times (once to start writing and twice more to edit).

Regarding the first writing assignment and the first test, the analysis looked at the following five structures (analysis A):

1. Definite articles in nominative and accusative case including plural forms;
2. Personal pronouns in nominative and accusative case;
3. Conjugation of 'haben' (to have) and 'sein' (to be);
4. Regular verb conjugation including verb ending on 'd/t' and 's';
5. Word order in statements;

Participants learned these structures that were taken from the textbook in class. The three instructors used the same textbook (*Deutsch Naklar*, 5th edition) and had weekly meetings to discuss the teaching methodology.

Writing assignment two, as well as the second test, were also analyzed regarding those five structures to investigate their retention (analysis B). In addition, the following structures were analyzed (analysis C):

1. Conjugation of vowel change verbs;
2. Conjugation of separable verbs;
3. Word order of separable verbs,
4. Conjugation of modal verbs,
5. Word order of modal verbs,
6. Prepositions with the accusative case;
7. Personal pronouns with the accusative case.

At the end of the study, a short survey was carried out to get feedback from students that had used a wiki (see Appendix). It asked students about their experience, attitude and anxiety towards such a technology.

RESULTS & DISCUSSION

In order to determine if the three groups were at the same level of proficiency, the total points of Test 1 and Test 2 were calculated by adding up the points of each of the 24 participants in each group. Results showed similar scores for all three groups.

Table 1: Overall Scores

	Group I	**Group II**	**Group III**
Test 1	301	282	280
Test 2	516	485	512

The maximum points that could be reached were 384 for Test 1 (16 pts per student) and 672 for Test 2 (28 pts per student).

In order to determine if the wiki technology had been used correctly, the logs of Group II (the wiki group) was consulted to ensure that participants edited and revised their texts several times. The logs showed that the twelve wikis produced in the first writing assignment were revised 7.6 times on average (least number of revisions by a pair of students: Four; highest number of revisions by a pair of students: Ten) and in the second writing assignment 9.8 times on average (least number of revisions by a pair of students: Four; highest number of revisions by a pair of students: Fourteen). The analysis was carried out using descriptive statistics as well as ANOVA. Participants in Group I worked in pairs not using a wiki; in Group II they worked in pairs using a wiki; in Group III they worked on the assignments alone (control group).

Descriptive Statistics

For the descriptive statistics of analysis A, B, and C, the total numbers of structures used, the correct number of structures used, and the error-ratio were calculated. Analysis A and B revealed no differences between the groups. The three groups used a similar number of structures and made a similar number of errors the first time they were tested and the second time they were tested (retention). Analysis C, however, showed results that warrant further investigation. The seven structures learned and applied in the second writing assignment and the second test could only be analyzed once as the term ended before a retention analysis could be carried out.

Table 2: Writing Assignment 2

	Group I (12)			Group II (12)			Group III (24)		
	Total	**(r)**	**Ratio**	**Total**	**(r)**	**Ratio**	**Total**	**(r)**	**Ratio**
vowel change:	22	20	0.90	16	14	0.87	39	32	0.82
sep. verbs:	15	14	0.93	27	21	0.78	40	27	0.67
sep. wo:	15	9	0.60	27	18	0.67	40	17	0.42
modal verbs:	39	33	0.85	42	37	0.88	77	65	0.84
modal wo:	39	23	0.59	42	25	0.60	77	41	0.53
prep acc:	26	15	0.58	24	12	0.50	40	21	0.53
pron acc:	31	29	0.94	32	28	0.87	56	50	0.89

Group III produced 24 texts, whereas Group I and Group II produced twelve texts each as participants in these groups worked in pairs. For example, the 24 students in Group I produced 12 texts using vowel change verbs 22 times, 20 times correctly thereby producing an error-ratio of 0.90; the 24 students in Group III produced 24 texts using vowel change verbs 39 times, 32 times correctly, with an error-ratio of 0.82.

Analyzing the total number of strategies showed that participants in Group II (the wiki group; based on twelve texts) used more separable and modal verbs and consequently had to deal with the word order of separable and modal verbs more often than the other two groups. The error-ratio showed that participants in Group II made the least number of mistakes compared to the other two groups regarding the word order of separable as well as modal verbs.

Test 2 results showed that the number of vowel change verbs and modal verbs was similar among the three groups. However, Group II used separable verbs less than the other two groups. The results of each group are based on 24 texts each as each student wrote the test individually.

Table 3: Test 2

	Group I (12)			Group II (12)			Group III (24)		
	Total	**(r)**	**Ratio**	**Total**	**(r)**	**Ratio**	**Total**	**(r)**	**Ratio**
vowel change:	37	22	0.59	28	14	0.50	27	14	0.52
sep. verbs:	43	26	0.61	33	13	0.43	44	30	0.68
sep. wo:	43	26	0.61	33	20	0.61	44	37	0.93
modal verbs:	78	51	0.65	81	59	0.73	83	55	0.66
modal wo:	78	36	0.46	81	44	0.54	83	43	0.52
prep acc:	55	39	0.71	53	40	0.75	47	31	0.66
pron acc:	42	40	0.91	44	43	0.98	44	43	0.98

The error-ratio revealed that the wiki group made the most mistakes using separable verbs including word order whereas Group III (the control group) made the fewest mistakes regarding the word order of separable verbs. However, the wiki group made the fewest mistakes using modal verbs including word order.

These results indicate that collaborating on a writing assignment benefited the wiki group: Students in this group conjugated separable verbs and placed them in the correct word order. However, there was one problem. When students in this group had to do the same task during the test, on which they worked alone, they did not successfully complete that task; in other words, it left them stranded. The numbers of Group I support this argument: They made the fewest mistakes of the three groups conjugating separable verbs in the writing assignment (working with their partner), but fell short to Group III in the test (working alone). Participants in Group III, on the other hand, had to work alone all the time. They seemed to have learned from their mistakes in the writing assignment regarding the word order of separable verbs and improved their score in the test. The question is why this pattern is not reflected in the word order of modal verbs. Separable and modal verbs in German both comply to the rule of the bracket (Klammerstellung): The separable verb takes second position and pushes the prefix to the end of the sentence; the modal verb takes second position and pushes the main verb to the end of the

sentence. However, the separable verb has to be separated from its prefix first, thereby adding another step in its correct use.

Another question arising is why only the control group seemed to have learned from their mistakes regarding the word order of separable verbs. All three groups received the same feedback after each writing assignment: The structures were reviewed using sentences students had written as examples. One explanation is that Group III did so poorly on the separable verbs in the writing assignment that they paid extra attention during the review and in the test. This is supported by the fact that they did not improve their score regarding modal verbs and that their score regarding vowel change verbs dropped significantly. Group II might have felt that they did not need to pay attention, although interestingly, they improved their score in prepositions and pronouns. In summary, there is some indication that the monitoring and student-student learning using a wiki benefited the students regarding the separable and modal verbs including their word order, but had no lasting effect because the high scores were not repeated when the same group took a test.

Analysis of Variances

An Analysis of Variances was carried out on the error-ratio of the second writing assignment and Test 2 as these revealed the most notable results using descriptive statistics. It compared the error-ratio of Group I with Group II, Group I with Group III, and Group II with Group III. The confidence interval was 95%.

Table 4: ANOVA

	SS	DF	MS	F	Sig.
Writing 2 I/II:	.00	1	.00	.133	.722
Writing I/III	.03	1	.03	1.083	.318
Writing II/III	.01	1	.01	.559	.469
Test 2 I/II	.00	1	.00	.000	.987
Test 2 I/III	.01	1	.01	.481	.501
Test 2 II/III	.01	1	.01	.352	.564

Results showed no statistically significant differences among the groups. Interestingly, the fewest differences were between Groups I and II. The scores were so high (p= .722 and p= .987) that they do indicate a very similar performance of the two groups collaborating on the writing assignments and that there was no difference using a wiki or using paper. This result is in line with Schultz' (2000) findings, which is rather intriguing considering that Schultz' study was on intermediate and advanced French, whereas this study was on beginning German. Schultz also did not find differences among the groups of her study.

The research questions asked if students using a wiki used more or less syntactic-morphological structures, had a higher or lower error-ratio and a higher or lower retention compared to students who did not use a wiki. These questions were asked based on the assumption that the monitoring writing process and the student-student learning would provide the students with a constructivist learning situation. The answer to each of the three research questions is no. Students using a wiki to collaborate on their writing did not perform significantly different compared to those students who did not use a wiki to collaborate on their writing assignments or who worked on their own. However, the results regarding separable and modal verbs are nevertheless intriguing and deserve to be investigated further (see below).

Short Survey

The second part of the study investigated how students used the wikis. A short survey was carried out asking students on where and when they participated in the collaboration; technical issues; and their attitudes and motivation regarding writing online. The questionnaire was distributed to the twenty-four students using a wiki, all of them returned the questionnaire.

Question one asked if the student had previously used electronic tools such as E-mail, Chat, or a wiki in class at the University of Victoria. Most students had not used these tools in class as the majority of students in German 100A were first-year students and this was one of the first classes they took. The exact numbers were: E-mail (7 yes/17 no), Chat (2 yes/ 22 no), Wiki (0 yes/24 no). Question two and three asked at what location and under what circumstances students used the wiki. Twenty students answered that they used their computer at home and four students answered that they had used the CALL facility on campus. Twenty-two students indicated that they were alone when they worked on the assignment whereas two students answered that someone else was sitting in front of the computer with them. Unfortunately, those two students did not elaborate if that other person helped them with the assignment or just kept them company.

Question four asked how the students felt about presenting writing online. Nineteen students felt comfortable with the assignment. Some of the comments included: "I like it. Working together is helpful" or "I feel comfortable with it – I know I have mistakes but it's a learning process". These comments supported the view of constructivist learning. Moreover, some students acknowledged that writing

is a work in progress, a point made by Kellog (1996) in his model of writing. However, there was also some criticism such as "I feel there wasn't enough privacy".

Question five asked about changing attitudes or motivation over the course of the term. Eighteen responses were positive: "I've noticed that other people are struggling with the same aspects of language as myself. It is a confidence boost to solve problems with peers", or "I would say yes in the sense that it made me more aware of the grammar". These responses supported the view that a learner's motivation is high if the technology is new and exciting (O'Dowd & Ritter, 2006). Five responses were indifferent and one comment criticized the use of a wiki as "I no longer enjoy writing". That last comment was particularly noteworthy as the indication is that new technology is not for everyone. As Rösler reminds us in his review article on digital media, we constantly have to ask ourselves what purpose the tools we choose serve. This notion is shared by Winke and Goertler (2008) who are asking: Are we forgetting someone? A large survey carried out with over 900 second language students at Michigan State University showed no direct transfer of students' skills using technology in their personal lives to using those skills in the classroom.

Question six asked about likes and dislikes of using a wiki. Twelve students commented on its convenience such as working from home and on their own time. Ten of the comments were more specific in liking the fact that you can trace the history of the editing process to see who did what and when, e.g., "I liked how you could see what was changed and work with a classmate". This seems to be a true advantage of a wiki over a pencil and paper assignment. In some way, changes can also be traced on paper but the information on what was changed when and by whom usually gets lost. The wiki assists the learner in tracing that information for him or her and providing it whenever necessary. This, in turn, helps with the editing process. One comment criticized using a wiki by saying "My partner received the same mark when he contributed not as much as I did". Question seven asked how a wiki could be improved. Sixteen students had no comments to this question or said: "Fine, it works well". The other eight students commented on technical aspects such as "buttons to insert German characters would be nice".

In summary, most students felt comfortable participating in a shared online writing task although this was their first experience with this type of assignment in a second language class. Most students thought that it did help their writing, they acknowledged that writing is indeed a process, they were motivated and they appreciated the collaboration with a partner, the potential of revising their texts, the assistance of the tracking/tracing function, and the convenience of working from home. The results of the survey therefore support most other studies in this area.

However, there was also some criticism by students reminding us to carefully think about why we use technology in the classroom.

CONCLUSION

There is still much research to be carried out on online collaborative writing using wiki technology. The short survey carried out in the study presented here confirmed students' readiness to engage in such a task, much like previous studies which have pointed out the benefits of motivation and participation. The benefits regarding the grammatical structures, however, remain undetermined. The research questions were answered negatively: Students using a wiki did not use more or fewer syntactic-morphological structures, and they did not have a higher or lower error-ratio or a higher or lower retention compared to students who did not use a wiki. There was some indication that students using a wiki had an advantage in applying complex structures to their writing, such as separable and modal verbs and finding the correct word order. The editing and revision process of a wiki might have helped them spot mistakes and correct them as part of the monitoring process and the student-student learning in a constructivist learning situation. It can be argued that the students who collaborated on their writing assignments on paper also engaged in a constructivist learning situation. They might have discussed the grammar before writing the text and that discussion might be an indication of student-student learning.

The difference to the wiki group is in the 'Monitoring' process as described by Kellog (1996). This process takes place over time allowing students to revisit and edit their writings many times. However, the results of this study show that this process did not have much of an impact. One explanation might be that the time interval of five days to complete the writing assignment was too short or too long. Another explanation could be that the number of words or number of assignments did not produce enough texts to bring out differences. It would be a good idea to repeat the study and change the intervals and/or increase the number of words per assignment or the number of assignments, as it might lead to different results. The question remains why the control group performed similarly to the other two groups. Participants in the control group worked on their own. One explanation might be that students in the collaborating groups did not provide feedback to each other. As Ware and O'Dowd (2008) pointed out, students need to be explicitly told to give feedback on grammar and style. Students of the wiki group received instruction on how to use a wiki, including the editing and revision process and a practice session. However, that was only done once in the CALL facility. In addition, the instructions on the wiki site provided that information. This might have not been enough. Perhaps learners need to be reminded to provide feedback to each other more often.

Another explanation might be that at the beginning language level, syntactic-morphological structures are not complex enough that the monitoring or student-student learning would have an effect. The one difference between groups was using separable and modal verbs, which were the most complex of all the structures tested. Finally, there is the possibility that the group size of two students per wiki was too small. In a larger group, the weaknesses and strengths of each student might have more of an impact because these weaknesses and strength might differ from student

to student. In other words, there would be more opportunity to feed off one another. However, the results of Schultz' study (2000) that was carried out with groups of three with intermediate and advanced learners were inconclusive.

At this point, there is no data supporting any of those explanations. It would be useful to carry out a repeat study making the following adjustments: Change the time interval students work with a wiki, increase the number of words per assignment or the number of assignments or both, remind students to give each other feedback more often, and to continue using a wiki in the follow-up course German 100B where the grammar is more complex. The advantage of using a wiki is that students expressed interest using this technology thereby confirming other studies, e.g., by Kern, Ware, and Warshauer (2004), that showed a motivational factor using CMC tools. Combining this interest with a redesigned writing assignment might be an avenue to follow to help students using syntactic-morphological structures correctly more often.

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APPENDIX A

Survey

1. Have you used the electronic tools in a second language classroom before? If so, describe your experience:

   a) E-mail:
   b) Chat:
   c) Wiki:

2. Where did you write your Wiki?

   a) Computer at home   b) Computer in the library   c) CALL facility   d) Other:

3. Was anyone sitting with you in front of the computer when you wrote your Wiki?

   Yes   No

4. How do you feel about presenting your writing on-line in a class or school?

5. Have your attitudes and motivation towards writing differed or improved over the course of this term by using Wikis? If so, how and why?

6. What did you like or not like about using Wikis?

7. How can a Wiki be improved to meet your needs?