The Report committee for Christine Molina Martinez

Certifies that this is the approved version of the following report:

Wiki Technology Use in Collaborative Second Language Writing

APPROVED BY SUPERVISING

COMMITTEE:

Supervisor: _____

Diana Pulido

_____

Elaine K. Horwitz

Wiki Technology Use in Collaborative Second Language Writing

by

Christine Molina Martinez, B.S.

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Wiki Technology Use in Collaborative Second Language Writing

by

Christine Molina Martinez, MA

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SUPERVISOR: Diana Pulido

This paper seeks to provide a comprehensive overview of current literature regarding technological tools such as Wikis for their use in second language collaborative writing instruction. Some trends that have been identified in technology use for collaborative writing in the second language classroom are that students generally enjoy the technology coupled with group work, and that scaffolding between more and less advanced learners tends to occur when using these online tools. Some areas remain unclear, however, with varying results in several studies as to the quantitative effects on second language acquisition of implementing Wikis and other online tools in group writing exercises. Additionally, freeloading has been observed in various studies, which presents second language teachers with a dilemma when deciding whether to incorporate new technological tools for group work in their classrooms. Finally, this paper provides some ideas for future research directions as well as some practical suggestions and implications for foreign language teachers who wish to utilize Wikis and other collaborative online tools.

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Introduction

Collaborative writing is an ideal tool for the second language (L2) classroom because it requires learners not only to produce the L2 on paper or in a computer file, but also to communicate with each other in order to produce the L2. According to Swain's Output Hypothesis (Swain, 1993), such pushed output will lead to L2 acquisition when learners notice problems in their own output and have chances to correct their output. Pushed output is normally discussed in the context of speaking, but it certainly applies to writing as well. Collaborative writing gives students an audience who can help draw attention to problems in their compositions. It also allows learners to negotiate for meaning when inevitable misunderstandings occur. Negotiation of meaning forces learners to modify their output in order to communicate. This happens not only when they read each other's written compositions, but also either orally or through writing in feedback discussions. These discussions can lead learners to become more aware of gaps in their own L2 writing and the desired level, and can lead them to incorporate corrections in order to bridge these gaps. Collaboration also aids in language acquisition from the perspective of *sociocultural theory* (Lantolf & Thorne, 2006). This theory emphasizes learning as a social enterprise in which students collaborate, negotiate, and ultimately gain new knowledge about a subject as a group. By using their own unique knowledge and skills, stronger learners help other members of the group and eventually the whole group rises to a new level of understanding. Thus, by working together, students in the second language classroom share ideas and get beyond their initial level of

writing ability by scaffolding each other. More advanced learners can help peers who are less advanced to reach the next level in their writing through feedback.

Traditionally, language teachers have implemented collaborative writing activities during class time using the classic "paper-and-pencil" approach. This can be very time-consuming and potentially face-threatening for some learners who lack confidence in their own writing or who feel uncomfortable correcting their peers. Web 2.0, which is a term used to describe the stage of the internet that allows for the creation of social media sites and information exchange, has given teachers new ways to deal with these issues by providing them a variety of new platforms that can be used for collaborative writing. The most popular tools examined in SLA research to date are Wikis, which are free collaborative online writing documents that allow learners to edit, link, and produce writings as a group. Wikis are published on the internet and can be viewed by anyone, giving students an authentic audience.

Another technological writing tool is the GoogleDoc. GoogleDocs are free word processing documents that can be edited simultaneously by other users. They can be restricted so that only certain people have access, or can be open to the public. Less commonly researched technological tools are Social Networking Sites (SNS) such as *Lang-8*. This tool allows learners to be part of an online community in which they can socialize with a language focus. Users can upload compositions and get feedback and corrections from native speakers of their target language, and can also correct compositions from other users on *Lang-8*. The effectiveness of SNSs for SLA has not

been extensively researched, but the nature of these sites make them viable options for collaborative writing. Many other technological tools such as email, online translators, and chatrooms are also used for collaborative writing, but will not be included in the scope of this paper.

Because online writing tools allow learners to efficiently access and edit each other's compositions, they theoretically provide an ideal platform for SLA from the perspective of sociocultural theory (Lantolf & Thorne, 2006). Students can become more autonomous online because they can extend the writing process beyond the classroom and can also incorporate other online resources in their writing process. They can more efficiently scaffold each other and need not be face-to-face to have meaningful interactions. By collaborating online, learners can help each other take the next step in their writing in a more active way than by simply turning in essays and having them graded. This paper will begin by summarizing the most recent literature on collaborative writing and technology-mediated collaborative writing tools. The articles selected represent the most recent attempts by researchers to gain more knowledge both about collaborative writing in general as well as the implications of using technological tools for collaborative writing assignments. This paper will then make some observations about trends in the research, and provide pedagogical implications as well as areas for future research.

Article Summaries

Storch, N., (2011) Collaborative Writing in L2 Contexts: Processes, Outcomes, and Future Directions. ***Annual Review of Applied Linguistics, 31,*** **275-288.**

Storch's 2011 article outlines the current state of research on collaborative L2 writing. Storch, like many others, uses the sociocultural and cognitive approaches to SLA as a theoretical base for collaborative writing. Language Related Episodes (LRE's), which are instances when learners talk about the language to come to an understanding, are an important part of language acquisition from the perspective of the cognitive approach (Swain & Lapkin, 2001). The most important findings from the research on LRE's show that lower-level learners may come to erroneous conclusions and need teacher scaffolding. Also, learner pairs who collaborate more equally engage in more LRE's than learner interactions that are more one-sided. Storch also reviews the literature on outcomes of collaborative writing, and notes that the number of studies examining L2 learning as an outcome is very small.

The article concludes by discussing the field of online collaborative writing, especially the use of Wikis. Most of the studies at the time of this article focus on learner perceptions and are descriptive in nature, so the effective nature of tools like Wikis in the L2 classroom is virtually unknown. Previous studies have found that some learners prefer individual to collaborative writing, but Storch points to the possibility of greater motivation in collaborative writing tasks with the use of online tools, and the extent of this motivation needs further examination.

Storch, N. (2005). Collaborative writing: Product, process and students' reflections. ***Journal of Second Language Writing, 14*****, 153–173.**

Before delving into the subject of technology use in collaborative writing, it is helpful to explore the results of a study on traditional collaborative writing. Traditional collaborative writing, for the purposes of this paper, is simply any collaborative writing task without the influence of technological tools. Storch's study examined texts produced by adult learners enrolled in an intermediate-level ESL class in Australia. There were 23 participants, and all the participants could choose whether to work in a group or individually. Overall, only five students elected to work individually, the rest opting to work in pairs. Students were given a writing task in the fourth week of the course, and while the students in groups completed the task, their interactions were recorded by a voice recording device. The task involved a graphic prompt, about which students were instructed to write two paragraphs. The students then completed an individual oral interview with the researcher shortly after the completion of the writing task.

The compositions were analyzed using quantitative measures on fluency, accuracy, and complexity. Student collaborations were transcribed and coded for seven different focus areas, with varying times spent on each focus area noted. The focus areas were found to be task clarification, generating ideas, language related episodes, structure, interpreting graphic prompt, reading and re-reading, and other, which included topics such as task management. Finally, the student interviews were qualitatively analyzed to note trends in opinions on group work and collaborative writing. The results showed that

pairs produced more accurate and complex texts, but the results were not statistically significant. For the collaborations, the researcher found that the groups tended to spend the most time in the generating ideas focus area, followed by language related episodes. Interestingly, groups took a significantly longer amount of time to complete the task than individuals. From the student interviews, the trends noted were that most students had positive opinions about the collaborative exercise, with the exception of two, who felt self-conscious about having their partner correct their writing. The researcher noted that because both these students happened to be Japanese, there could be cultural differences that make collaborative writing less appealing in other cultures.

Because the results of the quantitative analysis were not statistically significant, we cannot definitively say that the collaborative writing groups performed better than the individuals. Also, because there was an unequal number of participants between the groups and individuals, this study needs to be repeated with a larger sample size in order to yield more definitive results. The results from the student interviews did produce some interesting observations that need to be taken into consideration when planning collaborative tasks. While the majority of students did seem to prefer working in groups, there were students who felt uncomfortable participating in this sort of task, possibly due to their cultural background. More research should be done into various cultural preferences for group work.

Wigglesworth, G., & Storch, N. (2009). Pair versus individual writing: Effects on fluency, complexity and accuracy. ***Language Testing, 26,*** **445-466.**

In a larger-scale study, Wigglesworth and Storch also examined pair versus individual writing. The study was conducted at an Australian research university, where students of advanced-level English writing ability, based on their TOEFL scores, volunteered to participate. The participants were divided into 48 pairs and 48 individuals. The task was to write an argumentative essay on the advantages and disadvantages of exam-based assessment. Because of Storch's (2005) previous finding that groups take longer than individuals to complete writing tasks, groups were given 20 more minutes than individuals. The essays were coded for fluency, accuracy, and complexity using a similar method to the one used by Storch in the previous study (2005). 12 of the 48 group interactions were randomly selected to be recorded, transcribed, and analyzed on three levels: (1) planning, composing, and revising, (2) episodes, and (3) language-related episodes (LREs).

The results of the quantitative portion of this study showed that groups produced significantly more accurate texts than individuals, but that no significant differences were found in fluency or complexity. Analysis of the group interactions showed that for the first level, groups spent the majority of their time composing the essays, followed by planning and lastly, revising. Level two of the analysis examined different episodes that occurred during the collaboration. The majority of episodes were content-related, followed by language-related. In level three of the analysis, LREs were categorized into lexical, mechanical, or grammatical episodes. The researchers found that lexical LREs dealing with word choice were most commonly observed, but that each group varied

greatly on relative percentages, some focusing more on form while others on organization or word choice.

Bradley, L., Lindström, B., & Rystedt, H., (2010). Rationalities of collaboration for language learning in a wiki. *ReCALL, 22,* 247-265.

Bradley et al.'s 2010 study explores the nature of peer feedback in Wiki-based writing assignments. The participants were 56 Swedish engineering students in an English for Specific Purposes class. The participants were instructed to divide into groups of two or three, 27 groups in total, and create Wiki pages for their individual groups. These pages could only be edited by members of the group or the teacher, but were open to be seen by everyone. Over the course of the class, the students had to complete 3 modules, each with a different prompt, in which they would have to produce a group composition using the Wiki. They were also asked to give feedback to other groups in Module 2. Only 25 groups were examined in the data following the end of the course.

The results of the study showed that five groups did not collaborate in the majority of interactions, but rather cooperated, meaning that instead of working together to make a group composition, each student uploaded his or her own part with little discussion, coordination, or feedback. 15 groups actually did collaborate most of the time, however, making corrections on each other's work and jointly creating new ideas. The groups who collaborated produced more versions of the final composition overall than the groups who simply cooperated, and also engaged in more editing behavior. In these collaborations, group members often engaged in meta-talk about the compositions.

Feedback to other groups in Module 2 was mainly given as comments in the text and at the end of the text rather than explicitly one or the other. The feedback consisted of more linguistic comments overall than content-related ones.

While the results of the study are interesting, it would have been helpful had the researcher included some of their data in a table. Vague references to "most comments" and "many groups" do not allow Bradley et al. to make convincing implications about the use of Wikis in the language classroom. The fact that the collaborative groups produced more versions and engaged in more editing than the cooperative groups may seem to point to more negotiation for meaning and opportunities for acquisition, but because the authors do not comment on the results of these interactions, we cannot make this claim.

Arnold, N., Ducate, L., & Kost, C. (2012). Collaboration or cooperation? Analyzing group dynamics and revision processes in wikis. ***CALICO Journal, 29,*** **431-448.**

Another article examining the collaborative writing process is Arnold et al.'s study on collaboration or cooperation. They asked whether learners in a university level German class cooperated or collaborated when using a Wiki for a group writing project. The researchers also asked whether formal revisions are more successful when students edited their own work, or when they edited each other's work. Finally, they wanted to know if students developed task roles while working together on a Wiki.

In the group exercise, it was found that in each group, students took on a range of different workloads, ranging from group leader to free rider. The group leader role made the most corrections overall and guided the other students throughout the project. The

free rider role was characterized by students who made the lowest percentage of corrections in their group and who contributed minimally overall. Interestingly, the researchers observed that in each group of approximately 3 students, it was clear which students fell into which role by the percentages of error corrections. Arnold et al. also found that students were more hesitant to make content corrections on their peers, but were fairly comfortable making formatting corrections. Overall, the self-corrections and peer corrections resulted in similar percentages of errors.

Elola, I., & Oskoz, A. (2010). Collaborative writing: fostering foreign language and writing conventions development. ***Language, Learning & Technology, 14,*** **51-71.**

Elola and Oskoz attempted to observe the differences in students' perception and approaches between individual and collaborative writing through social tools in their study. The participants were eight students from a U.S. university who were enrolled in an advanced Spanish writing course. The students completed two argumentative essays using Wikis over the course of the semester, turning in two drafts for each essay. The first was done as a collaboration in pairs, and the second was done individually. When collaborating, the students could choose between voice or text chats to interact. Participants completed a short Likert-scale questionnaire about their perceptions on individual and collaborative writing at the beginning and end of the course.

To compare essays, Drafts 1 and 2 were coded for fluency, accuracy, and complexity. Collaborative work was categorized by essay-related aspects and interaction-related aspects. When Draft 2 was compared between the individual and collaborative

groups, no significant differences were found in fluency, accuracy, or complexity. For individual essays, Drafts 1 and 2 were significantly different in fluency and accuracy, but in collaborative essays, there were no significant increases between Drafts 1 and 2; this could have been due to the small size of the study, however. The focus on various writing components differed between individual and collaborative essays. Individual essays did not begin with thematic organization, whereas group essays did. Also, in individual essays, vocabulary and grammar were focused on in final drafts, whereas in the group essays these were focused on throughout the drafts. When collaborating in chats, the groups spent most of the time discussing content, and when having social interactions, spent most of the time agreeing or disagreeing with one another. The perception questionnaires revealed that learners saw the benefit of working as a group because of different perspectives and improved overall quality, but that learners also may prefer working on their own because of the ability to develop a personal style in their writing.

This study represents a bold attempt to quantify the benefits of collaborative writing through use of technology. While it does not compare technology to traditional methods, it did examine the collaborative aspect of writing in order to see if group writing is actually more beneficial than individual. The results are intriguing, as they show that group writing involves a different organization and planning process than individual writing. The study also shows the benefits of using Wikis for researchers: it would not have been possible to see the progression of revisions with traditional writing tasks. The small sample size means that this study is limited, but it should be repeated on a larger scale because the research questions are relevant to the current state of the field.

Kessler, G., Bikowski, D., & Boggs, J. (2012). Collaborative writing among second language learners in academic web-based projects. ***Language, Learning & Technology, 16,*** **91-109.**

Kessler et al.'s study looks at a different technological tool than most studies reviewed so far: GoogleDocs. GoogleDocs have many of the same features of Wikis, but they allow users to simultaneously edit the document. The participants were 38 Fullbright scholars with different L1 backgrounds participating in an English for Academic Purposes class. They formed groups of three or four to collaborate via GoogleDocs and write up a research project together over the course of three weeks. Three groups were randomly selected for the researchers to analyze their revisions, which were coded based on language-related revisions or non-language related revisions. Language related revisions were defined as revisions attending to "form, meaning, or other". Form related corrections included grammar, punctuation, and spelling, whereas meaning related corrections included revisions that had to do with the comprehensibility of the report, such as replacing one word for a better word. Other language related revisions had to do with movement, deletion, or addition of text to a different location to help the flow of the report. Episodes of formatting, planning, and non-project communication fell under the category of non-language related revisions.

The results showed that group members made more language related corrections than non-language related, and that within the language-related corrections, content was focused on more frequently than form. The language related corrections that focused on

form showed more accurate than non-accurate corrections, and the authors take this to mean that the collaboration resulted in improved accuracy. In addition, many instances of collective scaffolding, in which one more advanced learner helped the others, were recorded. This study did not comment on the final product, but rather the process of collaborative online writing. The ability of the students to simultaneously add corrections seems to have enhanced their collaboration by allowing them to work more efficiently, but there was no comparison to a non-technology control group, so this claim cannot be validated by the present study. The researchers also found that in the collaborations, students generally fell into three distinct levels of participation as shown by the percentages of error corrections made within their groups. This meant that not all group members contributed equally and while some took on the bulk of the responsibility, others let their teammates do all the work.

Lee, L. (2010). Exploring wiki-mediated collaborative writing: a case study in an elementary Spanish course. ***CALICO Journal, 27,*** **260-276.**

This study delves into learners' perceptions of using a Wiki for collaborative writing, as well as the extent of scaffolding and peer feedback that take place. As an added facet, Lee also chooses to include the role of task in Wiki-mediated writing. Unlike other articles thus far, the participants are beginning learners, in their second semester of college Spanish. The two sections observed had three short, one-page essays to do throughout the course of the semester. The first two essays were done as homework and included drafts done over the course of two to three weeks, and the last essay was done in

class during a 50 minute block with no draft. The compositions were to be written using a Wiki platform, and students were put into small groups with one more advanced learner in each group. The tasks were meaning-based with focus on different grammatical forms. Students were trained beforehand on the use of Wikis and on giving feedback. At the end of the course, students were given a Likert-type survey that included room for free response on their perceptions of the Wiki exercise. Additionally, one student from each group was randomly selected to do a 20-minute interview with open-ended questions about observations of the assignments.

The results of the perception survey showed that overall, students appreciated the ease of collaboration afforded by Wikis, as well as the motivating nature of having their work looked at online and by their peers. Analysis of the discussion showed that students noticed and practiced certain pragmatic elements because of the task topics, showing that the choice of task was very important in eliciting these instances of meta-talk. It was apparent in the discussions that scaffolding between more advanced learners and less advanced learners occurred, but to what extent was not included in the study. One of the most important findings of the study was that a substantial amount (40%) expressed that they were reluctant to edit their peers' work using the Wiki. From the interviews it was clear that they felt that it was not their place to correct other students' ideas. Some students also noted that they thought teacher feedback was more important than peer feedback.

This study was vague in expressing quantitative results as far as how much scaffolding actually occurred and the nature of the collaboration. It is useful to analyze learners' perceptions, however, especially their concerns in terms of reluctance to give feedback, because if students do not feel comfortable correcting their peers, the point of the exercise is defeated.

Chao, Y., & Lo, H. (2011). Students' perceptions of Wiki-based collaborative writing for learners of English as a foreign language. ***Interactive Learning Environments, 19,*** **395-411.**

Like Lee (2010), Chao and Lo also considered students' perceptions of Wikis in collaborative writing, but instead observe the individual stages of the writing process rather than the overall process. The participants were 51 English majors enrolled in two English composition classes at a Taiwanese university, who were split into groups of four or five. The task was for each group to create a story script to develop their narrative writing styles. For five weeks, students had to complete weekly stages of the writing process. The stages were collaborative planning, partitioned writing, peer-revising, peer-editing, and individual publishing. The data were collected from a five point Likert-scale questionnaire, and three separate open-ended questionnaires.

The results from the questionnaires showed that students had an overall positive experience using Wikis in their writing, with a few complaints about technological problems, like not being able to log in sometimes. Students thought that Wikis made it easy to communicate and that the group work was helpful to make corrections. In the

collaborative planning stage, students expressed their ability to generate many more ideas when working with the group than when working individually, while a few complained that the group aspect was more time consuming. In the partitioned writing stage, which required students to post their individual drafts for their assigned scenes, some students noted that they asked their peers for help when they had trouble coming up with certain words. During the peer revising stage, it seems that students were able to share strategies for improving each other's drafts. In the peer editing stage, most learners expressed that while they were hesitant at first to make corrections to their peers, they eventually got used to it and felt a sense of achievement afterwards. In the individual publishing stage, most students said that the group had already taken care of most of the final editing already. Student comments also showed that the writing stages often overlapped, with some individuals editing their own work during the peer editing stage, etc. This finding suggests that collaborative writing is a naturally recursive process rather than a linear one.

While this study made useful observations about generally favorable student perceptions of Wikis, the specific results for individual items on the questionnaires were not included, making it difficult to be sure where the percentages in the analysis originated. It was also quite liberal in saying that the online collaborative activity was more motivating that traditional writing activities because there was no control group from which to base these assumptions. The scaffolding of the specific stages and tasks seemed to be helpful, but again there was no control group to make claims about the relative usefulness of such tasks.

Rott, S., & Weber, E. D. (2013). Preparing students to use Wiki software as a collaborative learning tool. *CALICO Journal, 30,* 179-203.

Unlike previous studies, Rott and Weber's article discussed the preparation that should go into implementing a Wiki collaboration assignment in the L2 classroom based on current literature, analysis of Wiki collaborations over several semesters, and from student feedback collected through surveys. The article gave a framework for creating successful collaborative tasks.

Rott and Weber's framework first suggested introducing learners to Wikis and genre and level appropriate resources for writing. To introduce the layout of the Wiki, teachers in this project created a conceptual map that showed the various relationships between Wiki features and pages. To introduce resources, a list was provided of appropriate sites that learners could peruse on their own time. Because previous studies have shown that peers can have difficulty understanding each other's writing, an explicit instruction was given about how to write for a peer audience rather than an expert one (inclusion of subtitles, vocabulary definitions, etc.).

Next, the authors recommended providing a hands-on technology introduction. In this study, the hands-on introduction was given in class, in which an expert on the tool led students through the various features of Wiki. A troubleshooting link was also added to the course website so students could try to resolve problems on their own. The students were also introduced to the chat synchronous and asynchronous functions in Wiki,

although this step was deemed unnecessary if a link with instructions was included on the course website.

Rott and Weber then suggested instructing students on how to conduct research and take notes in Wiki most efficiently. A lesson on effective note taking and how to avoid plagiarism was also given as a reminder to learners. The fourth step was intended to scaffold students in the collaborative and cooperative process of writing. This step was implemented by having a class discussion about the expectations of group collaboration. The researchers found that setting deadlines for drafts were essential in ensuring groups had enough time to collaborate. Teachers also provided examples of appropriate feedback from previous semesters, which students found helpful to know how to interact online.

Finally, Rott and Weber advised teachers to scaffold learners in editing and facilitating peer feedback. For this step, teachers again provided examples from past semesters on how collaborative discussion could be useful for correcting grammar and content.

Rott and Weber provided a practical guide to implementing collaborative writing tasks in the L2 classroom using Wikis. The main observation from the authors was that preparation and support are helpful steps on the part of the teacher in order to achieve optimal results in collaboration.

Kost, C. (2011). Investigating writing strategies and revision behavior in collaborative wiki projects. *CALICO Journal, 28,* 606-620.

This study examined the kinds of strategies learners use when working in Wikis on collaborative assignments. It also considered the types of revisions made and learner perceptions of Wikis. The participants were two U.S. university students of sixth-semester German as well as six U.S. students of fourth-semester German. The students had the opportunity to write one or two of the regularly assigned compositions using a Wiki in collaboration with a partner. For the study, one essay from the sixth semester class was analyzed and four from the fourth semester class were analyzed.

The data for the revisions and strategies were taken by looking at the history of each Wiki. Revisions were coded into formal (surface) changes or meaning-preserving (stylistic) changes. Examples of formal changes would be revisions made to spelling, punctuation, word order, or verb tense, whereas meaning-preserving changes were revisions that included word additions, deletions, or substitutions. A questionnaire to gauge students' perceptions of collaborative writing and Wiki use was also given at the end of the semester. The results of the history analysis showed that groups employed very different strategies for prewriting. While some groups created a separate page to brainstorm and another page to get familiar with Wiki, others brainstormed and started writing on the same page almost simultaneously. Some groups had several pages of revisions while others had few, and some had more collaborative interactions whereas others simply wrote their own parts individually and put them together. Most revisions in the data came from formal linguistic corrections rather than stylistic corrections. Scaffolding between a more advanced and less advanced peer occurred in one notable case, in which the less advanced learner asked for his classmate's help in exchange for

doing more of the writing. Student perceptions of the user-friendliness of the Wiki were that it was "mostly" user-friendly, according to the questionnaire. The questionnaire also focused on the perceptions of collaborative writing itself, with 100% of the students responding that they would like the opportunity to write collaboratively in other foreign language classes. Because of the small number of participants (8 total but only 7 responded to the questionnaire), this study made useful observations but should be repeated to gain more generalizability.

Woo, M., Chu, S., Ho, A., & Li, X. (2011). Using a wiki to scaffold primary-school students' collaborative writing. ***Educational Technology & Society, 14,*** **43-54.**

Woo et al.'s article is one of the first to look at Wiki use for younger learners (10-11), whereas the majority of the field has focused on university-level. The participants in this study were 38 primary-five Chinese students who could write 100 word compositions in English, a relatively high level for students of this age. The students took part in a six week intervention program in which they were placed into groups of four to six and assigned to use Wikis to write a composition about an animal of their choice. To collect the data, the researchers used teacher questionnaires with open-ended questions, student questionnaires with both closed and open questions, a teacher interview, a focus group, and an analysis of students Wikis and their history. Types of revision were categorized as adding ideas, expanding ideas, reorganizing ideas, and correcting errors.

From the student questionnaires, the most convincing finding was that students thought that commenting on peers' work in the Wiki helped improve their writing. The

teacher questionnaire showed that teachers had some concerns about the Wiki collaboration, like technological issues, lack of experience by the students with Wikis, and lack of access to Wikis at home. The students expressed frustration when having to wait almost 30 minutes for the Wiki platform to load in some instances, due to the amount of users trying to access the site. In the focus groups, the students perceived educational benefits from using Wikis, such as learning knew words and grammar knowledge from their peers, the opportunity to practice writing English, and the ability to practice choosing relevant information to include. Teachers noted that the online collaboration had important social affordances as well. Students of different genders interacted online more frequently than in face-to-face contexts.

The analysis of the Wiki pages revealed that students made more content-related revisions than form-related ones. The results of this study showed an overall positive reaction from learners and teachers about Wikis. At a young age it seems that collaboration may be even more important than at an older age for encouraging motivation and participation.

Liu, M., Abe, K., Cao, M.W., Liu, S., Ok, D.U., Park, J.B., Parrish, C., & Sardegna, V.G., (in press). An Analysis of Social Network Websites for Language Learning: Implications for Teaching and Learning English as a Second Language. *CALICO.*

Liu et al.'s forthcoming study looks at the potential for Social Networking Sites for Language Learning (SNSLLs) use in the ESL classroom. The SNSLLs examined are *Lang-8*, *LingQ*, *italki*, and *Polyglotclub*. It is an intriguing study because it is one of the

first to try to identify the usefulness of these particular sites in the language classroom as perceived by both students and teachers. All of these sites allow users to practice their L2 writing by creating posts and being able to receive feedback on them. The participants of the study were six experienced ESL teachers and six ESL students from a U.S. university.

The researchers examined each of the SNSLLs for features that made them able to facilitate language learning, both from the teacher and student perspectives. Six of the participants then were chosen to evaluate the usability of two random sites each. For each site, the user was given an hour to complete a list of tasks on the site, and afterwards filled out a usability survey and participated in an interview. *Lang-8* was the SNSLL overwhelmingly perceived to be most usable in the ESL classroom overall.

The results of this study are very helpful to teachers looking to implement one of these online tools because they can take into account the needs of their particular classes when deciding whether or not to use one of these sites. For example, the authors mentioned that certain sites, such as *Lang-8*, which does not require users to use an email address and which has stricter rules on who can post on each other's wall, may be more appropriate for learners who feel uncomfortable interacting with strangers. In addition, certain classes may not be mature enough to handle the online SNS environment responsibly. This article makes a strong argument for the thoughtful implementation of SNS sites in the classroom for various purposes, one of which is collaborative writing. *Lang-8* in particular falls under the category of a collaborative writing tool because users can give each other feedback, much like in Wikis. Unlike Wikis, however, Lang-8

provides the atmosphere of a SNS, and users are automatically set up with other users who are native speakers of their target language. The fact that *Lang-8* is perceived to be usable in the language classroom means that more research needs to be done on how it can be used to facilitate second language acquisition and writing development. This article does not make any claims about the effectiveness of any of the tools for language acquisition, which is another area that needs to be further explored.

Discussion of Articles

Summary of Research

This paper has reviewed some of the most recent articles regarding technology in L2 collaborative writing, especially Wikis. Wikis are a frequently-researched and increasingly used technological tool in L2 writing because of the saved history function that allows researchers to easily obtain transcriptions of user interactions. However, much more exploration still needs to be done because, although Wikis appear to be more efficient that "paper-and-pencil" type writing assignments, they are still a relatively new tool, and more knowledge about their ideal uses as well as potential problems can help teachers plan to implement technology more effectively in collaborative L2 writing tasks.

Students' perceptions of Wiki use have been a popular subject of study, and the results have been generally positive because of the motivating nature of having writing read by an audience (e.g., Chao & Lo, 2011; Chu et al., 2011; Elola & Oskoz, 2010; Kost, 2011; Lee, 2010). While most learners tend to appreciate the group-oriented nature of Wiki writing tasks, some studies have found that not all learners feel this way. For example, Lee (2010) found that almost half of the study participants were reluctant to correct their peers' ideas, and that some learners found the teacher's feedback more helpful than their peers'. Chao and Lo (2011) also observed that some students felt initially reluctant to correct their peers, although the majority felt more comfortable after the first draft. Storch (2005) hypothesized that some students may feel uncomfortable with group work in general because of their cultural background. Most studies that

analyzed students' perceptions of Wikis found a few instances of complaints about technological issues (Chao & Lo, 2011; Lee, 2010; Woo et al. 2011). These issues included slow loading times and problems saving their work.

One of the main rationales for using collaborative writing tasks instead of individual writing tasks is that the process of collaboration in online environments like Wikis is generally seen to encourage scaffolding from more advanced learners to less advanced ones (e.g., Chao & Lo, 2011; Kessler et al., 2012; Kost, 2011; Lee, 2010). Scaffolding is seen as vital to learning from the social constructivist perspective because it allows less skilled learners to come to their own new understandings with guided help from more skilled learners. Scaffolding, however, does not entail the more expert learner simply giving the less advanced learner answers, but rather guiding the less advanced learners to reach their own level of new knowledge. In this way, scaffolding represents a social activity in which both learners benefit since the more advanced learner also gains reinforcement of an already learned skill through helping a peer. Regarding peer feedback, its perception by learners appears to vary greatly from person to person, with each study yielding different results. This suggests a need to investigate how individual differences relate to providing and accepting peer feedback in Wiki environments. While the studies examined in this paper showed that peer feedback did seem to result in more accurate than non-accurate corrections, they did not compare corrections made in Wikis to those made in traditional peer feedback exercises. This would be an interesting comparison to examine the effects of auto-correct features or online dictionaries on pair writing.

One troubling trend that was observed by both Arnold et al., (2012) and Kessler (2012) was that group members did not necessarily contribute equally in online collaboration tasks. The studies found that while many students participated in group work and had a positive attitude towards it, there was a large number of "freeloaders", or students who made minimal contributions. This observation is particularly worrisome for teachers who wish to implement collaborative writing tasks in the second language classroom because it means that non-participators defeat the purpose of collaboration, which is that more advanced learners help struggling learners through scaffolding, and that by working together the whole group becomes stronger. If some learners choose not to participate, not only will they fail to reap the benefits of the collaborative exercise, but they also likely make the exercise less enjoyable for the group members who have to do more than the intended amount of work, leading to possible frustration and resentment.

With respect to whether using technology-mediated collaborative writing leads to increase in language acquisition, the research is limited and contradictory. Elola and Oskoz (2010) found no significant differences in fluency, accuracy, or complexity between individuals and groups who turned in secondary essay drafts. However, they found that individuals improved in fluency and accuracy from the first draft to the second, whereas there were no significant improvements between the first and second draft for collaboratively written essays. Storch (2005) did find that traditional writings produced collaboratively were more accurate than individual writings, although not significantly so. Wigglesworth and Storch (2009), in a more recent study on traditional collaborative writing, found that groups did produce more accurate texts than individuals.

However, none of these studies examined whether individuals would produce more accurate writing as a result of group work.

Suggestions for Future Research

The general consensus seems to be that students enjoy using Wikis for collaboration. It seems logical, then, to empirically investigate the effectiveness of such tasks and tools on second language writing and language acquisition in general. While on the surface it may seem that the collaborations do result in improved accuracy, many studies lacked control groups or any sort of pre- and post-tests to measure improvements in writing. It is not known whether collaborative writing with technology results in more language learning or more skilled writing than more traditional writing instruction. It is possible that because students have access to online translators and dictionaries, the importance of form becomes less salient to them. More quantitative research is definitely needed in this area because, up to this point, the research has tended to focus on learner perceptions and the collaborative writing process, while it is still debatable whether collaborative writing mediated by technology aids in language acquisition.

A second suggestion for further research is to investigate the effectiveness of other technological tools, such as SNSLLs, for classroom use in second language writing improvement in terms of accuracy, fluency, and enjoyment. Tools like *Lang-8* have immense possibilities, but the effects of their use in the L2 classroom are unknown at the present point in time. SNSLLs are similar to Wikis in that users can access and edit their peers' writings, as well as chat online about language, and can also be used for

collaborative writing if users help edit each other's texts or create texts together. The main difference is that SNSLLs have a more prominent social aspect, encouraging users to chat and create profiles, much like they would in the social media sphere. As SNSLLs develop, it will be interesting to observe learners' interactional and writing patterns connect with such tools. It would be useful to record and analyze student interactions in SNSLLs and compare them to interactions on Wiki pages, using a similar coding scheme to Storch's (2005) in order to observe patterns that emerge. Perhaps interactions on SNSLLs may lead to more meaning-related episodes because of the socially-oriented atmosphere, whereas Wiki pages have more of an academic atmosphere. As far as qualitative research is concerned, Elola and Oskoz (2010) provide a usable framework for measuring accuracy, fluency, and complexity in student compositions that can and should be utilized in future studies attempting to measure acquisition gains from collaborative writing. It is also important to note that when examining second language writing improvement, researchers should include some sort of pre- and post-test measures to have a point of comparison. Simply comparing essays written by individuals and groups does not give an accurate picture of the second language learning that goes on during collaboration.

One area of qualitative research that has yet to be explored in great depth is the phenomenon observed by Arnold et al. (2012) and Kessler (2012), where some students become non-participators in group work. While it is easy to assume these students are free riding because they are simply lazy, there may be other emotional or cultural factors that cause them to feel intimidated or excluded from group work. In-depth analysis of

student interviews about sentiments towards group participation would add some insight into this aspect of collaborative writing.

Finally, the issue of cultural background and Wiki-mediated collaborative writing tasks is an area that has not been explored in depth. It was suggested by Storch (2005) that some learners may feel uncomfortable with group writing assignments in general because of cultural norms. These negative feelings could possibly be exacerbated by the online environment in Wikis or SNSLLs, in which more people have access to students' work. In order to further investigate this topic, among other types of research, qualitative analysis of student interviews would help researchers observe trends between students from different cultural backgrounds.

Pedagogical Implications

In the language classroom, teachers must first consider whether group writing, with or without technology, is the best option for their specific learners and environment. The implications from Storch (2005) suggest a need for teachers to take cultural background into account when assigning group writing tasks. In certain cultures, for example, the practice of saving face may cause students to feel uncomfortable correcting each other's work, making collaborative writing tasks painful and awkward, when they are intended to be social and motivating experiences. Teachers must also remember that group writing tasks have been shown to be more time consuming than individual tasks, and plan class time accordingly (Storch, 2005). Although technology may help by allowing groups to write faster, research has not shown this to be true.

The research done on technology in L2 collaborative writing has several implications for the classroom. Rott and Weber (2013) provide a very useful framework for scaffolding collaborative writing activities for advanced learners. The main tenets of this framework are that learners need explicit instruction on the layout of technological tools like Wikis and how to use them. Additionally, providing an easy-to-follow troubleshooting guide for students can make them feel more at ease using the tool as well as help them should they encounter problems. Troubleshooting guides can help to combat technological issues that have been shown to frustrate students and deter from the overall usefulness of the Wiki platform (Chao & Lo, 2011; Lee, 2010; Woo et al. 2011).

Learners also need instruction on the correct way to give feedback and collaborate. As shown in Lee (2010), some students do not feel comfortable correcting each other and some do not find peer feedback as helpful as teacher feedback. Additionally, Chao and Lo (2011) found students to be initially uncomfortable, but more at ease after the first round of peer feedback. To counter students' reluctance to correct each other, teachers can do exercises beforehand such as correcting a sample text as a class. This can show students what type of errors to look for based on the focus of the class. For example, some teachers may be focusing on a particular grammatical structure, so in this exercise, the teacher would want to draw attention to errors that have to do with that form. The teacher can also show students past examples of constructive versus unhelpful feedback and have students try to create their own examples of constructive feedback on a sample text. These types of activities done beforehand may help students gain confidence in their ability to give feedback as well as to help them become

accustomed to the idea of correcting one another. Because the research shows that learners' feelings towards giving feedback are varied, teachers may want to consider their specific contexts when deciding if this is the best approach. Certain cultures, ages, or genders may not be as receptive to giving and receiving feedback from their classmates, and may prefer the teacher's corrections.

The focus of collaborative writing tasks should also be made clear. If the purpose is to focus on content, teachers should demonstrate how students can collaborate about the content. If groups are assigned to write an argumentative essay, for example, teachers can give each group a checklist with items like thesis, topic sentence, supporting evidence, etc. When writing the essay together, groups must check off each item on the checklist to ensure they have made a strong argumentative essay. If the focus of the collaborative writing task is form, the teacher can show how to give corrective feedback on grammatical mistakes. An error-laden paragraph can be displayed to the class, and the teacher can show how to underline or circle words and even give an error classification system. The writing tasks should also be engaging to encourage communication instead of just compliance. Tasks like writing about German rock music or making a story script can appeal to students' interests and motivate them to interact. It is also helpful when groups are divided evenly as to the level in each group. This way, advanced learners can help scaffold their peers who need help.

Another important implication from Rott and Weber (2013) is that teachers must give clear deadlines so that students can have enough time to collaborate. In addition to

this, Arnold et al. (2012) and Kessler (2012) have shown that some students tend to freeload in collaboration tasks, meaning that teachers need to give clear directions as to expectations for group work. Highlighting the importance of equal contribution and collaboration rather than cooperation can draw students' attention to this issue and hopefully discourage freeloaders from leaving the bulk of the workload to their group members. Another way teachers can combat freeloading is by assigning participation points to group tasks. Students who do not make any corrections or who simply copy and paste into the Wiki page should get less points than those who make an effort to help their group. Additionally, teachers should attempt to uncover the reasons behind students' tendencies to be non-participators, as they may not be trying to freeload at all but may have some underlying issues with group work or with their group members. It may be necessary to switch group members around to find the ideal balance in the collaborative exercise.

Finally, because the acquisition effects of technology-mediated collaborative writing are still being discovered, teachers must use caution when relying solely on these types of tasks for teaching purposes. Although it is still unclear whether the individual student benefits quantitatively from group work, collaborative writing online has been shown to be motivating and engaging to most students, and can still be used as a variation and expansion on traditional writing instruction. Teacher scaffolding and guidance are still key components of collaborative work and should under no circumstances be omitted. Because technology changes on a day-by-day basis, students will likely come to the language classroom with a variety of backgrounds in technology use. Teachers need

to be prepared to be flexible to meet the changing needs of their students as these new advances in technology emerge, and to think of new and inventive ways to best incorporate technology into the curricula, always with the needs of the individual students in mind.

Conclusion

Wikis and similar online writing tools such as GoogleDocs are theoretically ideal environments for learners to produce original work. Swain's Output Hypothesis (Swain, 1993) argues that this production is necessary for second language acquisition to take place. Students who are required to create original writings should notice gaps in their abilities and will be forced to develop new skills to overcome these gaps. Online tools such as Wikis provide a space for students to be creative and efficient. When such resources are available and when students have adequate skills to use them, they make composition faster and more fluid because of the ability to type rather than handwrite, and because of the relative ease of self-correcting. Although some research did show that Wikis caused frustration because of slow loading time an difficulty saving work, improvements are constantly being made to the interface and problems can hopefully be avoided in the future. The Output Hypothesis emphasizes the need for learners to produce, and Wiki pages have the unique potential to act as a canvas for language learners to write together despite the time and space restrictions of the language classroom.

Along with producing output, second language acquisition is also facilitated by social interaction according to sociocultural theory (Lantolf & Thorne, 2006). In this paper we observed many studies in which students understood and appreciated the ability to work together on their writing assignments afforded to them by Wikis. Analyses of interactions on Wikis did, in fact, show several instances of scaffolding between learners

who appeared to be more advanced and learners who were still struggling with particular forms. These interactions are evidence that teacher's purpose for implementing collaborative writing tasks versus individual writing tasks is being realized: learners do tend to interact with each other and help each other in online environments, at least to a certain extent, in line with sociocultural theory. Caution must still be exercised, however, to combat the freeloading phenomenon observed in some studies; freeloading defeats the purpose behind collaborative writing exercises and will not result in second language writing improvements. Due to the history feature of Wikis, teachers can monitor participation and can hopefully discourage freeloading in their collaborative exercises. One of the greatest advantages that Wiki pages have made possible for language learners is the ability for scaffolding and interactions to occur outside the physical language classroom. Because of the increasing availability of Web 2.0, even young students may have access to Wiki pages at home, and can keep producing output and working together even when they aren't physically with their group.

Wikis have tremendous potential to revolutionize the second language classroom in terms of collaborative writing. As student and teacher access to Wikis increases worldwide, we will gain more insight as to how this tool can help learners to better their writing by working together. At the same time, new tools such as SNSLLs are being rapidly developed that will also impact the future of collaborative writing in the second language classroom. This comprehensive overview has been an attempt to shed light on current issues and observations regarding Wiki technology and collaborative writing with the goal that these resources will be further explored and used more frequently.

References

Arnold, N., Ducate, L., & Kost, C. (2012). Collaboration or cooperation? Analyzing group dynamics and revision processes in wikis. *CALICO Journal, 29,* 431-448.

Bradley, L., Lindström, B., Rystedt, H., (2010). Rationalities of collaboration for language learning in a wiki. *ReCALL, 22,* 247-265.

Chao, Y., & Lo, H. (2011). Students' perceptions of Wiki-based collaborative writing for learners of English as a foreign language. *Interactive Learning Environments, 19,* 395-411.

Elola, I., & Oskoz, A. (2010). Collaborative writing: fostering foreign language and writing conventions development. *Language, Learning & Technology, 14,* 51-71.

Kessler, G., Bikowski, D., & Boggs, J. (2012). Collaborative writing among second language learners in academic web-based projects. *Language, Learning & Technology, 16,* 91-109.

Kost, C. (2011). Investigating writing strategies and revision behavior in collaborative wiki projects. *CALICO Journal, 28,* 606-620.

Lantolf, J. P., & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development.* Oxford: Oxford University Press.

Lee, L. (2010). Exploring wiki-mediated collaborative writing: a case study in an elementary Spanish course. *CALICO Journal, 27,* 260-276.

Liu, M., Abe, K., Cao, M.W., Liu, S., Ok, D.U., Park, J.B., Parrish, C., & Sardegna, V.G., (in press). An Analysis of Social Network Websites for Language Learning: Implications for Teaching and Learning English as a Second Language. *CALICO*

Rott, S., & Weber, E. D. (2013). Preparing students to use WIKI software as a collaborative learning tool. *CALICO Journal, 30,* 179-203.

Storch, N., (2011) Collaborative Writing in L2 Contexts: Processes, Outcomes, and Future Directions. *Annual Review of Applied Linguistics, 31,* 275-288.

Storch, N. (2005). Collaborative writing: Product, process and students' reflections. *Journal of Second Language Writing, 14,* 153–173.

Swain, M. (1993). The output hypothesis: Just speaking and writing aren't enough. *Canadian Modern Language Review, 50,* 158-164.

Swain, M., & Lapkin, S. (2001). Focus on form through collaborative dialogue: Exploring task effects. *Researching pedagogic tasks: Second language learning, teaching and testing,* 99-118.

Woo, M., Chu, S., Ho, A., & Li, X. (2011). Using a wiki to scaffold primary-school students' collaborative writing. *Educational Technology & Society, 14,* 43-54.

Wigglesworth, G., & Storch, N. (2009). Pair versus individual writing: Effects on fluency, complexity and accuracy. *Language Testing, 26,* 445-466.