ReCALL **25**(2): 233–249. 2013 © European Association for Computer Assisted Language Learning
doi:10.1017/S0958344013000025
First published online 18 March 2013

*Discussing the factors contributing to students' involvement in an EFL collaborative wiki project**

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Abstract

A growing number of researchers have acknowledged the potential for using wikis in online collaborative language learning. While researchers appreciate the wikis platform for engaging students in virtual team work and authentic language learning, many also have recognized the limitations of using wikis to promote student collaboration (Alyousef & Picard, 2011; Arnold, Ducate & Kost, 2009; Coniam & Kit, 2008; Judd, Kennedy & Cropper, 2010; Warschauer, 2010). The current study aims to examine what factors facilitated or hindered student collaboration when a wiki environment was used to engage 103 Taiwanese students from two universities in an online picture book production project. Divided into 17 groups of four to six members, the students spent approximately one academic year forming online communities, learning to conduct peer editing, and collaboratively completing a final learning product, an online picture book. A variety of data, including the electronically archived versions of the wiki pages, students' responses to retrospective surveys, and focused follow-up interviews were collected and analysed. The findings suggested that the nature of the learning tasks, students' constant communication and appreciation of different opinions, the difficulties they encountered when communicating asynchronously, and students' expectations toward English learning affected to what extent they were involved in the online collaboration.

Keywords: wiki, peer collaboration, language learning, EFL, higher education

1 Introduction

Given the increasingly widespread use of computer mediated communication (CMC) tools, online peer collaboration has become a desired component in many language

* The authors would like to thank National Kaohsiung Marine University, Taiwan, for financially supporting the research conducted in the school year 2010.

learning classrooms. Among the various media used in promoting online peer collaboration, wikis are receiving increasing attention. Their particular characteristics, such as asynchronous dialogs, user-friendly interface, page change history tracking, non-linear structure, and therefore multi-authorship, make wikis "an especially powerful tool for collaborative writing and collective knowledge development" (Warschauer 2010: 5). Language learning researchers have examined student perception of using wikis in collaborative work (Alyousef & Picard, 2011; Coniam & Kit, 2008; Elola & Oskoz 2010; Judd, Kennedy & Cropper, 2010) and their effect on student writing development (Arnold, Ducate & Kost, 2009; Bradley, Lindström & Rystedt, 2010; Dymoke & Hughes, 2009; Kessler, 2009). Although most of the studies confirmed the positive effects wiki collaboration brought to student language learning experiences, many have pointed out the limits of using wikis to promote student collaboration. For example, researchers have observed that when conducting online written tasks, students favored cooperative learning (that is, individual students independently accomplished delegated tasks) over collaborative learning (Alyousef & Picard, 2011), and chose to help each other with grammar editing instead of content revising (Arnold, Ducate & Kost, 2009). They also noticed delayed work and limited input by students (Coniam & Kit, 2008) and reported that the use of wikis would not necessarily ensure or encourage collaborative learning behavior unless the designed writing task is collaborative in nature and appropriately weighed in course assessment (Judd, Kennedy & Cropper, 2010).

With the aim of investigating how wikis can be implemented in language learning instruction to facilitate peer collaboration, this study asks the following questions:

1 How are students engaged in the collaborative project when groups of students are required to accomplish an online picture book using the wiki tool?
2 What factors facilitate their engagement in the collaborative project and what factors hinder it?
3 What are students' perceptions of the project? Do they enjoy the collaboration?
4 Is there a significant relationship between students' posting frequency and their perceptions of the project?

2 Effective use of wikis in peer collaboration

Scholars have long distinguished the differences between cooperation and collaboration. In cooperation, "partners split the work, solve sub-tasks individually and then assemble the partial results into the final output" (Dillenbourg 1999: 11). On the other hand, collaboration is defined as "a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem" (Roschelle & Teasley, 1995: 70). Therefore, in collaboration, there is a "mutual engagement of participants in a coordinated effort to solve the problem together" (Dillenbourg, Baker, Blaye & O'Malley, 1995: 190). The focus is on the process of working together (Myers, 1991). The collaborative learning situation can be further identified through three criteria: Peers "(i) are more or less at the same level and can perform at the same actions, (ii) have a common goal, and (iii) work together" (Dillenbourg, 1999: 9).

Because a wiki is defined as a "collaborative web space where anyone can add content and anyone can edit content that has already published" (Richardson, 2006: 8), its function in providing a learning team's collaborative work space has been widely recognized. When engaging students in collaborative writing practices, the wiki "opens the door to brainstorming, group problem solving, critical evaluation, synthesis, idea refinement, and group consensus" (West & West, 2008: 5). However, scholars have also expressed concerns regarding online collaborative learning, seeing several issues evolving. For example, Dirkx and Smith (2004) indicated interpersonal issues, not all members working at equal levels or equally committed to the process, fear of loss of voice, and difficulty with working across differences among group members. Yukselturk and Cagiltay (2007) also suggested time allocation problems and task-related issues. Since wikis are considered an important tool for facilitating learning collaboration, it is essential to explore how to ensure that effective collaboration is taking place when wikis are implemented.

A number of empirical studies have been conducted and some of the factors affecting the effective use of wikis in peer collaboration have been identified:

2.1 Nature of the tasks

In Alyousef and Picard's (2011) study, groups of English as a Second Language (ESL) university students were required to read a scenario, answer questions through the wiki discussion pages, and then create a final report on the wiki page. Alyousef and Picard found that "most students' collaborations were not true since they were not engaged in co-authoring, but rather providing feedback to each other" (*op. cit.*: 475). Alyousef and Picard concluded that this might be due to the nature of the task. They stated, "since the students were rewarded on the number and quality of posts in the wiki, not how well they collaborated or worked together, the task itself seems to be cooperative rather than collaborative" (*ibid.*). In their study, Choy and Ng (2007) also found that the implementation of wikis was not an entirely successful experience as the participation rate of the students was low. Students in Choy and Ng's study were encouraged (but not required) to use wikis as a supplement for their distance learning course. They could author or co-author new wiki pages related to the course content, and they could ask questions, receive feedback and interact with one another through the commenting section of each wiki page. However, Choy and Ng noticed the challenges of implementing wikis as an add-on: students were accustomed to the course's existing learning management system and the add-on wikis involved workload and motivational problems for the students.

2.2 Student preference of working style

Elgort, Smith, and Toland (2008) found that although students in their study appreciated the group wiki assignment and considered it a valuable learning experience, "significant numbers felt they could have done the assignment better on their own" (*op. cit.*: 206). They also observed that some groups' wikis were "clearly the work of separate individuals each using their own approach" (*op. cit.*: 207). A similar finding was also reported in Arnold, Ducate, and Kost's (2009) study,

which observed that their students maintained a more individual approach, dividing labor among group members and later on assembling subtasks into a larger whole. Arnold, Ducate, and Kost concluded that "choosing cooperation over collaboration might be indicative of an ingrained habit based on previous class experiences or a conscious choice triggered by working style preferences" (*op. cit.:* 134).

2.3 Social loafing

Social loafing is "a matter of expending less energy on a task than if one were working alone on that same task" (Ashcraft & Treadwell, 2007: 143). Like any other peer collaboration activity, in a wiki collaboration, it is not uncommon to observe an uneven distribution of workload and slacking on the part of some group members. For example, in their study, Judd, Kennedy and Cropper (2010) found that their least productive students provided less than 15% of the total wiki content, suggesting that they were "probably more concerned with simply meeting the task contribution requirements" (*op. cit.*: 350). Coniam and Kit (2008) also noticed in their study that certain students contributed very little. They concluded that since there was no penalty for individuals' lack of participation, some students did not take the wiki task as seriously as they might have. Therefore, Witney and Smallbone (2011) suggested, "group working is facilitated by equal levels of commitment and good rapport between team members and undermined if people have disparate goals or there are free riders" (*op. cit.*: 107).

2.4 Quality of student contributions

In his study, Kessler (2009) had non-native speaking pre-service English teachers collaboratively construct a wiki as a reflection of what they had learned in the class as a community. The aim of the task was for the students to co-construct knowledge. However, Kessler noticed that during peer-editing, students "frequently overlooked glaring grammatical issues that they later demonstrated the ability to correct, while instead attending to rather insignificant issues of formatting, font, and other personal stylistic preferences" (*op. cit.*: 90). Kessler attributed this to two factors: "the informal context of the collaborative writing environment and the perceived low-impact nature of the errors themselves" (*op. cit.*: 91). Lee (2010) reported similar findings, seeing that more than 40% of her Spanish-speaking English language learning students, when providing feedback to each other, "were notably reluctant to edit their peers' entries" (*op. cit.*: 271). Different from Kessler's (2009) study, Lee (2010) found that the unwillingness to edit peers' existing writing resulted from students' lack of confidence in their own writing. In either case, the quality of students' contributions in the wiki collaboration activity was greatly affected.

2.5 Instructor attitudes

Guo and Stevens (2011) investigated the factors influencing the use and usefulness of wikis. They reported that "the tutors' perception about using wikis in the course was the key factor associated with students' rating of the usefulness of wikis in their assignments" (*op. cit.*: 233). This was especially the case at the start of the course

when the students had little experience in using wikis. If the instructors displayed a negative attitude towards wikis then negative attitudes toward wikis would also be expected from students, and effective collaboration would be less possible.

To build on the existing knowledge about wiki implication in language learning instruction, this study involves English as a Foreign Language (EFL) students of different majors and genders, with the goal to find out more about the factors facilitating student collaboration and language learning experiences when a wiki tool is employed in language learning courses.

3 Methodology

3.1 Participants and context of the study

One hundred and three second year university students from two different universities in Taiwan, enrolled in English writing courses, were recruited for the year-long interschool collaboration. National Kaohsiung Marine University (NKMU) students were science majors (Shipping Technology and Marine Engineering) and mostly males (44 males and 3 females), while National Kaohsiung University of Applied Sciences (KUAS) students were English majors and mostly females (51 females and 4 males). Seventeen groups of four to six students (a grouping design following the example set by Murray, 1992, for ESL student collaborative writing) were formed with equivalent numbers of students from the two universities, and a member-protected wiki site was created for groups to communicate and to collaborate. Project-based learning theory guided the construction of the interschool collaboration, where students were provided with the opportunities to plan, organize, negotiate, make points and arrive at consensuses with their group members while completing their group project together (Moss & Van Duzer, 1998: Rationale section).

The first semester was allocated for students to build a community with each other and to get acquainted with the practice of peer editing, in which students needed to offer both global and local revising suggestions. During the second semester (when major data collection for the study started) groups created their online picture books. Picture books were chosen as the writing task because they could be composed in a short period of time since they usually contain fewer than thirty pages. Although short in length, the concepts embedded in the texts, however, could still be thought-provoking (Burke & Peterson, 2007; Murphy, 2009; Wilkins, Sheffield, Ford & Cruz, 2008), and therefore served to challenge the adult participants in the study. In addition, as producing picture books required artistic capabilities, the project might also serve to empower those students who were not proficient in English writing and accordingly bring them a sense of achievement when helping to produce the books. To create their group picture books, the students had to complete the tasks including drafting, collecting images, editing, and arranging layouts. A course syllabus was created to ensure that the groups of students accomplished each task before they produced the final work (see Table 1). Then the number of wiki entries from each individual student was counted into their academic achievements. Students were also asked to self-evaluate their own and their peers' efforts made throughout the project. In the end, each group received a common score for their final collective work, the online picture books.

Table 1 *Summary of scheduled class activities*

Order of Week	Class Activities
1	Introducing the project Assigning groups Group members electing leaders
2–3	Groups discussing and deciding on picture book topics
4	Group members assigning tasks
5–9	Group members- –Drafting the story –Collecting or creating images for the story –Editing writing –Arranging layouts of the online picture books
10	Sharing with the other groups the final works
11	Self and peer evaluation
12	Celebrating
13–18	(Distributing surveys and conducting follow-up interviews)

A celebration was held at the end of the project for students to share their final products and to express their reflections about participating in the project.

3.2 Data collection and data analysis

Data collection took place in the second semester, from September 2010 until June 2011, a total of eighteen weeks. An array of data was collected and analyzed through both quantitative and qualitative methods, as described below.

3.2.1 The electronically archived versions of the wiki pages. Students' archived entries on the wiki pages (see Figure 1) were collected and counted to see to what extent students were engaged in the learning activities. Two trained research assistants read all the entries and coded the changes students made during each entry into five categories: story plot, word choice and grammar, arrangement of layout, illustration, and group member communication. The inter-reliability of the two research assistants was checked and the resulting Pearson correlation was high ($r = .835$, $p = .000$). Understanding gained from this data source helped answer the first research question, "How are students engaged in the collaborative project when groups of students are required to accomplish an online picture book using the wiki tool?"

3.2.2 Students' responses to retrospective surveys. A questionnaire consisting of 24 five-level Likert Scale questions (from totally agree to totally disagree) was distributed at the end of the project to find out about what students thought of the project. The questionnaire asked about students' perception of the group collaboration (Q1–Q7), opinions toward the use of wikis (Q8–Q14), and perceptions of the benefits of the project (Q15 to Q24). A Pearson correlation test was used to check the relationship between students' posting numbers and their perceptions revealed in the questionnaire. An independent t-test was also used to compare the

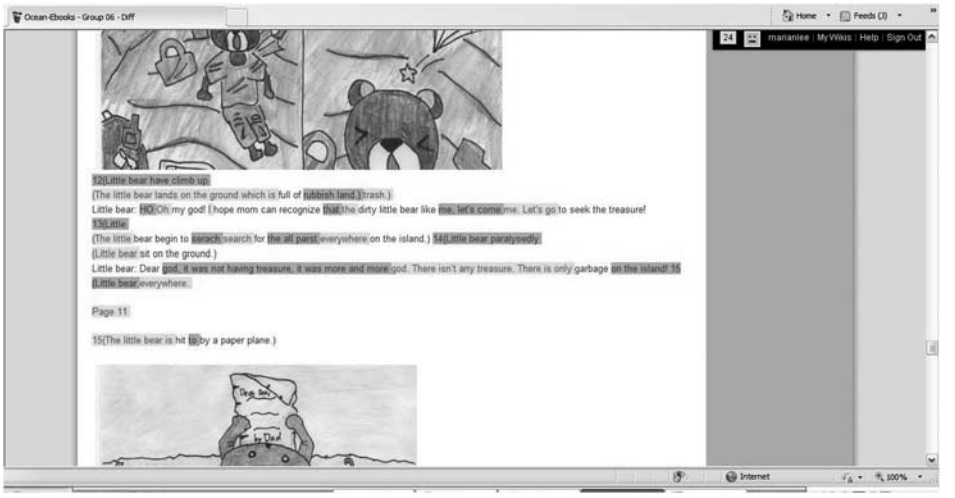

Fig. 1. Example of the archived changes students made in each wiki entry
(Note: *Wikispaces.com uses red highlights as the default colour for deleted words and green highlights for inserted words, which may not clearly show in black and white print*.)

attitudes of the students from the two schools presented in the questionnaire. Understanding gained through this cross-examination helped answer the third research question, "What are students' perceptions of the project? Do they enjoy the collaboration?" and the fourth research question, "Is there a significant relationship between students' posting frequency and their perceptions of the project?"

3.2.3 Focused follow up interviews. Eighteen focused student interviews were conducted at the end of the project. Although the students were randomly chosen for the interviews, a conscious effort was made to maintain an approximately equal distribution of genders and schools. Therefore, nine NKMU students (one female and eight males) and nine KUAS students (two males and seven females) received the semi-structured interviews either individually or in a group of three depending on students' preferences. During the interviews, the focused students reflected and commented on their learning experiences whilst participating in the project, including their perceived gains and challenges. A constant comparative method was then adopted to code the transcribed interviews, and through cross-examination of different students' answers, major themes emerged. Findings thus gained helped answer the second research question, "What factors facilitate their engagement in the collaborative project and what factors hinder it?"

4 Findings

4.1 Research Question 1: How are students engaged in the collaborative project when groups of students are required to accomplish an online picture book using the wiki tool?

Students' wiki posts were first counted and added, as presented in Figure 2.

The required total number of postings for the second semester was eleven. As Figure 2 illustrates, eight students (8%) fulfilled the requirement. Most students

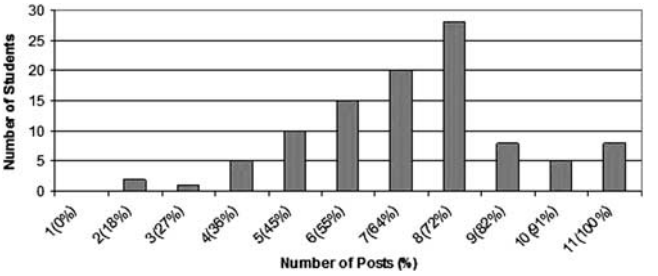

Fig. 2. Summary of student posting numbers

(61%) made between six and eight posts, more than half the required number. Less than a quarter of the students (18%) posted fewer than six times. The figures indicated that a majority of the students were able to participate in the project by fulfilling at least half the requirements. Considering students' other academic and life obligations as well as the self-regulation needed for an online activity, students' engagement in the project, as suggested by the figures, was quite frequent.

The archived changes of wiki pages, after being counted and coded, provided the information in Table 2:

As Table 2 exhibits, the largest number of students posted in order to modify the content of their online picture books. Except for posts regarding the arrangement of the layouts (which were slightly fewer than the other categories), all of the other three categories (word choice and grammar, illustration, and group member communication) were quite close in the number of posts. This indicates that students paid more attention to the story plots than how the electronic books looked, and they paid almost equal attention to both word choice and grammar and illustrations. Students also frequently left notes to their group members for communication. The following are some examples of the kinds of notes they used:

I plan to create pages two and three here before March 6;
If you would like to make any changes, please just go ahead and revise;
Shall I use 'black toro' here or just a regular big fish?

A closer look at students' postings from the two schools revealed more information about student engagement. As Table 2 shows, NKMU students (all science majors) contributed more regarding the content of their stories (138 entries, or 45 more than KUAS's) and layout (80 entries, or 32 more than KUAS's), while KUAS students (all English majors) contributed more towards word choice and grammar (101 entries, or 56 more than NKMU's). However, students from both schools made equal efforts to provide illustrations (86 entries by NKMU and 78 entries by KUAS). This indicates that the more capable English writers obviously took charge of the writing tasks, while the less capable writers shared the workload by offering ideas and managing the web pages. Since students might possess various artistic talents regardless of their majors, students from both schools shared equally in providing the illustrations. In conclusion, the information revealed in Table 2 suggests that groups of students came up with ways to work with their peers that promoted each other's strengths.

Table 2 *Summary of students' coded wiki posts*

Student Activity in the Wiki Entry	Number of Posts by NKMU	Number of Posts by KUAS	Total Posts
Content	138	95	233
Word Choice & Grammar	44	101	145
Arrangement of Layout	80	48	128
Illustration	86	78	164
Group Member Communication	87	66	152

4.2 Research Question 2: What factors facilitate student engagement in the collaborative project and what factors hinder it?

In the closing interviews, the students who commented that they enjoyed participating in the project were usually those who experienced a successful collaboration with their group peers. In the students' words, three factors facilitated their involvement in the project: an even share of workload, appreciation of different opinions, and constant communication. One NKMU student, Yangche,[1] talked about how his group worked together:

> *We both sides*[2] *contributed evenly in the language part, but they made more efforts in the illustrations. … In the beginning, we randomly came up with several story ideas, and then one member suggested this topic, and we all agreed. All the individual games were figured out by us all, and we picked those that were easy to present.*[3] (personal communication, June 2011).

Another KUAS student, Ruby, also recalled:

> *Everybody did his/her best. In the very beginning, we had discussed and each individual had expressed what part of the task he/she would like to complete; we also explicitly set the rule that we all needed to reply to one another. For example, when one person posted a sentence, if it was another person's turn to reply, then he/she would promptly respond by pointing out the more appropriate word usage or more correct grammar. It seemed to me that everyone was so dedicated to the project and worked wholeheartedly so that we could come up with the final product. Although it was such a long journey, and we needed to log onto the wiki website every week, we shared the task evenly* (personal communication, June 2011).

As for what hindered their engagement throughout the collaboration, most students indicated that the challenges caused by asynchronous communication, time pressure, personal incapability, and roles not taken seriously by the group were the main issues.

[1] All the students' names in this article are pseudonyms and all their comments were translated from Mandarin.

[2] NKMU and KUAS.

[3] This group's online picture book was about a sports meet held by some ocean creatures.

Almost all the students interviewed mentioned the difficulties caused by the asynchronous communication. They complained that they often had to wait a whole week to receive their peers' comments on their posts. The delayed communication hindered good team work and increased students' frustration. They also complained that with written communication, either in English or Chinese (as bilingual communication was allowed at the drafting stage), they sometimes found it difficult to appropriately express their opinions since they could not see the other students in person, could not receive instant feedback, and therefore could not make spontaneous reactions to justify their opinions.

Students also thought that a longer period of time should have been allocated for such a complicated online task; and some of them stated that they or their group members were lacking the artistic talents to create the illustrations needed for the online picture books or were limited in their English ability to write the story. Individual members' roles in the project not being taken seriously also discouraged some of the students from actively participating in the project. For example, an NKMU student, Jim, commented:

My contribution to the project was in the beginning when I provided some ideas about the picture book and also I searched for the related pictures. Then we did not seem to see eye to eye, so the sentences I wrote or the pictures I posted were removed as they were considered not going along with the group's expectation. … I was thinking that I would start with the main characters, but they thought I was doing the task casually, and also the pictures' format did not look quite right…so in the end, probably I contributed less than 50% to the final work (personal communication, June 2011).

The students' reflections suggest that successful collaboration takes good communication and an equal share of tasks. Students expressed in the interviews that their attitude toward the project changed after persistent participation: they had thought that completing the online picture book would be impossible, but eventually found it feasible as they followed the schedule and gradually finished each sub-task. Or, they had started posting on the wikis with the mindset that they did not want to fail the course, but ended with the outlook that they did not want to fail their groups. In other words, sustained participation showed the students the merits of online collaboration (for example, two NKMU students pointed out that they alone could not have accomplished such a learning product); it also helped them modify their attitudes toward the task and helped form a sense of community. However, continuous participation in the project also caused frustration for the students, as they experienced ineffective communication or social loafing (see Coniam & Kit, 2008; Judd, Kennedy & Cropper, 2010; Witney & Smallbone, 2011), and thus their engagement in the project was hindered.

4.3 Research Question 3: What are students' perceptions of the project? Do they enjoy the collaboration?

The closing focused interviews suggest that what students enjoyed most about the project was the opportunity of working with students from another school. Eleven out of the eighteen students stated that they found the project most beneficial for this

Table 3 *Comparison of student attitudes presented in the questionnaire*

School	N	Mean	SD.	t	p
NKMU	48	3.67	0.743	3.171	0.002**
KUAS	52	3.21	0.720		

**$p < 0.01$

reason. For example, Cody (an NKMU student) commented, "*The biggest gain for me was the teamwork and also getting to know new people*" (personal communication, June 2011). A KUAS student, Stan, also commented:

> *I found this project an interesting collaboration, because we did not know each other but we were working together. But it was also challenging, since we did not know each other. The biggest gain is that it was not a one-person work; it had to be completed by the whole team* (personal communication, June 2011).

Yet at the same time, students' comments suggested their ambiguous feelings toward the group collaboration. On the one hand, they appreciated the opportunity to work with a team beyond school boundaries, which was a unique experience to them; yet, they were also troubled by the challenges when working with a team, as it took time, effort, and good communication skills to collaboratively accomplish a task. This might explain why so many students held a neutral attitude when filling out the questionnaire: Of all the seven questions concerning student attitude toward group collaboration, on average 37% of the students held a neutral attitude.

Interestingly, different attitudes were observed between NKMU students and KUAS students when their answers to the questionnaire were examined. In order to see if there were any significant differences between student perceptions, an independent t-test was adopted to check student answers in the three aspects: group collaboration, the use of wikis, and the benefits of the project. The results revealed that although attitudes of the students from both schools were favorable to the above-mentioned three aspects, NKMU students' attitudes were significantly more positive than those of KUAS students ($p < 0.01$) (see Table 3).

This difference between students from the two schools students suggests that a combination of students with opposite genders and from different schools might initially ignite the participants' enthusiasm for exchanging messages. However, when students experienced the frequent confusion and frustration at not being able to help each other or to get beneficial feedback from their peers (which was especially the case with the KUAS students, who were English majors and therefore had higher expectations of the English learning project), the eagerness for collaborative learning gradually waned. Such a reaction could be seen through Tenya's comment, a KUAS student:

> *In my personal opinion, I think that pictures books are for children to read, so there won't be too difficult words used. The language should be short and clear. And when we discussed with the NKMU students, we used Chinese, so I had not used English very often. At most we translated their sentences into English or corrected*

some of their English grammars. I did not necessarily use much English (personal communication, June 2011).

As Tenya's comment implies, when the collaboration turned out to be some tedious tasks of correcting their peers' English grammar mistakes, the more capable female students became impatient. They did not acknowledge the fact that helping less proficient peers would also help to develop their English competence, since they would need to display a good knowledge of syntax in order to correct their peers' writing. Instead, they complained about not having enough opportunities to practise English writing. In contrast, the majority of NKMU participants, who were male, tended to have more tolerance toward the challenge of the tasks, and also cherished the opportunity to interact with the KUAS female students, mostly because they clearly saw the English help they could receive from their KUAS peers.

Students' majors might also have affected how this wiki collaborative learning experience was perceived. The science students (such as the NKMU students) may be better acquainted with project-based collaborative learning that involves working with each other to complete a task. On the other hand, humanities and language students (such as the KUAS students) may tend to work in a more isolated and individualistic fashion. Therefore, it was likely that the participating students' past learning experiences caused them to have varied opinions toward the wiki collaboration (as is suggested by Arnold, Ducate, & Kost 2009) and accordingly the NKMU students seemed to hold more positive attitudes than those from KUAS.

4.4 Research Question 4: Is there a significant relationship between students' posting frequency and their perceptions of the project?

A Pearson correlation test was applied to examine if there was any significant correlation between student engagement in the project and their perceptions of the project. Table 4 provides the results.

As Table 4 shows, there was no significant correlation between student engagement (in terms of how many entries they made on the wiki pages) and their perceptions of the project (in terms of their opinions on the group collaboration, the use of wikis, and the benefits the project brought to them). However, what should be noticed is that a negative (although not significant) correlation occurred between the two aspects. In other words, it seemed that the more the students posted, the more negatively they felt about the project. This might be explained by the fact that in completing the final

Table 4 *Correlation between student engagement and perception of the project*

	Collaboration	Wiki	Benefits	Posting no.
Collaboration	1			
Wiki	0.106	1		
Benefits	0.094	0.256*	1	
Posting no.	−0.099	−0.099	−0.151	1

*correlation is significant at the 0.05 level (2-tailed)

product, students had to accomplish various tasks, including idea generation, plot writing, picture creation, editing, and wiki page arrangement, as well as maintain constant asynchronous communication with peers. As a result, those who endeavored to finish their group online picture books found the project to be more tedious than enjoyable or beneficial. Considering how much effort and time the students had to spare for the project and their high expectation of the project, their lack of enthusiasm in embracing it was understandable.

On the other hand, a closer examination of student responses to the three different aspects (i.e. group collaboration, the use of wikis, and the benefits of the project) indicates a significant correlation between student perception of the benefits of the project and the use of wikis. That is, if students enjoyed using the wikis, they also thought that the project benefited them. This might also help to explain why students did not hold an absolutely positive attitude toward the project: their opinion of the use of the wikis played a vital role. An implication from such a finding is that the capability of students in mastering the wiki tool affected how positively they viewed the project.

5 Conclusion and implications

This study has identified the factors contributing both to the students' active engagement in the project and to their lukewarm involvement. The relationship between students' perception and their engagement has also been investigated. Previous studies have acknowledged the factors affecting how wikis worked in student collaboration, such as the nature of the tasks, student preference of working style, social loafing, quality of contribution, and instructor attitude. This study, built around the referred literature, has gained some new findings. For example, the factors contributing to students' active wiki collaboration, in addition to students evenly sharing the workloads, also involve their appreciation of different opinions, constant communication and participation among peers, and good wiki management skills.

In previous studies, scholars have identified issues with online collaborative groups, such as interpersonal issues, members not equally committed to the process, difficulty with working across differences among group members (Dirkx & Smith, 2004), and time allocation problems (Yukselturk & Cagiltay, 2007). The current study, although adopting a relatively new technology tool (that is, wikis), actually shared the same concerns with those studies whose focuses were on discussion boards and chat rooms. However, more insight concerning the factors hindering students from actively participating in a wiki collaboration were also obtained, including challenges caused by asynchronous communication, time pressure, personal incapability, and roles not taken seriously by the group.

In this project, students expressed enjoyment of the collaborative experience, yet participation in the project could not be deemed full length on the part of all the group members. Moreover, the findings did not indicate that students' perception of the project necessarily affected how engaged they were in the project. So, what can be suggested to teachers of language learning who are considering implementing wiki collaboration into their classroom practices?

Researchers have observed that using collaborative technology such as wikis does not guarantee that students will work together as a group or in cohesive way

(Elgort, Smith & Toland, 2008; Judd, Kennedy & Cropper, 2010). In addition, scholars have also noticed that "if wikis are offered as an option, then it would appear that students will opt not to use them, unless they are convinced by evidence of the benefits" (Witney & Smallbone, 2011: 108). Therefore, when conducting the current project, special efforts had been made to create a 'mandatory' collaborative environment, in which groups of students had to collectively complete the online writing assignment and would receive a common score for it. In other words, the nature of the task had been particularly regulated so that students saw that it was not a cooperative work and each individual's contribution would be evaluated as part of their course achievements. Moreover, a common score for the groups' final work also helped put an emphasis on the quality of the work rather than simply asserting that students had made enough posts. Accordingly, such a design must have facilitated students' engagement in the project to some degree. In the exit interview, at least three students explicitly stated that in the initial stage they were determined to accomplish the online tasks for the sake of getting a good grade. This attitude coincides with the findings of other scholars, i.e., when the wiki task required negotiated meaning which could have an impact on students' contributions, their motivation to participate and their learning experiences were obviously affected (Bower, Woo, Roberts & Watters, 2006).

Once students started to form a community, by holding the same goal of accomplishing the online picture book, an even distribution of the tasks determined how well their group project could work out. The findings of the study revealed that those groups figuring out a way to ensure every member's contribution, either in the story idea, English language, or illustrations, were usually the groups finding the collaborative experience enjoyable and productive. Informal communication with the students and the focused interviews led us to see that the students did not necessarily mind what tasks they were each responsible for, but what they actually considered important was whether all the group members contributed. As scholars have recognized in previous studies, unequal levels of commitment and 'free riders' would undermine the group work (Coniam & Kit, 2008; Witney & Smallbone, 2011). In this study, grudges toward social loafing were perceived in unhappy members from time to time. Some students were busy with other obligations, feeling incompetent in contributing to the task, or impatient with the delayed communications. In these cases, when even extrinsic motivation (i.e. the grades) failed to inspire their participation, other strategies to trigger students' intrinsic motivation might need to be developed.

Another pedagogical implication gained from the findings is that two-way communication will help sustain good collaboration. A great majority of the students in this study complained about the delayed communication with each other. It is true that "in asynchronous discussions, there are often time lapses between contributions" (Dirkx & Smith, 2004: 149). Moreover, the participating students were the so-called "instant-message generation" (Pew-Internet & American Life Project, 2001) who were always hanging online having innocuous real-time, direct, written-language-based chats. Therefore, the asynchronous wiki way of communication, where no immediate receipt of acknowledgement or reply was allowed, would appear less socially potent and particularly less effective and efficient in exchanging messages. How to help

students overcome the impatience they had when waiting for their peers' replies would be another big issue for teachers to deal with.

Since two-way communication was among the main reasons for good collaboration, it will be essential to find out what leads to two-way communication. Johnson & Johnson (1986) propose that the collaborative skills students need to use include leadership, communication, trust building, and conflict management skills. In this project, when some student groups exhibited the skills described above (for example, Yanche's and Ruby's groups), their collaboration was perceived a success by the students. Those groups failing to build mutual trust or unable to reach an agreement when members held different opinions (such as Jim's group) did not enjoy the project as a pleasant collaborative experience. Therefore, if students would like to actively collaborate with one another and have productive communication, they need to develop more "social skills" and learn how and when to give in.

As discussed earlier, the students participated in the project with the initial intention of fulfilling a course requirement. However, as time went by, the early extrinsic motivation evolved into an intrinsic one. Students who worked well with one another began developing a sense of community. They came to take it as their responsibility to accomplish the task, not wanting to fail their group members, as they would all receive one common score for the group's final work. A "community of practice" was thus formed, where the members sustained dense relations of mutual engagement organized around what they were there to do (Wenger, 1998: 74).

In addition, the findings of the study also suggest that there was no significant correlation between how much students devoted themselves to the project and how beneficial they viewed the project to be. Again, this suggests that an extrinsic factor was not the reason sustaining the students' motivation. As a matter of fact, in the focused reviews, at least three students mentioned that they had a great sense of achievement once the online book was completed. Even Tanya, the KUAS student who felt she was not learning too much about English writing from this project, commented that "The most important is that we won the second prize" (her group's work was chosen as the second best by the two raters). In short, for those who persisted in participating in the project, and continued making efforts to accomplish the online task, what inspired them to carry on was the pleasure (or even honour) of working with their teams and the sense of achievement once the task was completed. This suggests that there is a need to provide students with more long-term and problem-solving opportunities which allow them to spend sufficient time working and thinking together and building their own learning communities when collaboration is desired.

However, what also needs to be noticed is students' ambiguous attitude toward the project. When approximately one-third of the students gave a neutral answer to the questionnaire, and when the more English-proficient peers (such as the KUAS students) held a more negative opinion of the project than the less proficient ones, it would be important to find out if the project failed to meet the students' expectations. Was it likely that students did not find the project beneficial enough? For the more capable English writers, who may possess a higher expectation of the project and intend to use the opportunity to brush up their English writing skills, what should the instructors do to further challenge these learners of English? This will be an issue worthy of further investigation.

This paper discusses the possible factors contributing to active involvement in a wiki implementation in an EFL classroom, focusing particularly on its collaborative attributes. However, there are things left unexamined. For example, further research should be conducted to investigate whether successful wiki collaboration also promotes student language learning. Researchers can ask questions like: ''How can wikis be employed, in addition to facilitating student collaboration, to improve student writing skills?'' Or ''When wikis are implemented in the writing classrooms, does students' writing display a growth in quality or changes in idea construction?'' Investigation of these aspects may demonstrate that wikis are not only a helpful collaboration tool but also a powerful language learning tool.

References

Alyousef, H. S. and Picard, M. Y. (2011) Cooperative or collaborative literacy practices: mapping metadiscourse in a business students' wiki group project. *Australasian Journal of Educational Technology*, **27**(3): 463–480. http://www.ascilite.org.au/ajet/ajet27/alyousef.html

Arnold, N., Ducate, L. and Kost, C. (2009) Collaborative writing in wikis: insights from culture projects in German classes. In: Lomicka, L. and Lord, G. (eds.), *The next generation: social networking and online collaboration in foreign language learning*. San Marcos, TX: CALICO Publications, 115–144.

Ashcraft, D. and Treadwell, T. (2007) The social psychology of online collaborative learning: the good, the bad, and the awkward. In: Orvis, K. L. and Lassiter, A. L. R. (eds.), *Computer-supported collaborative learning: best practices and principles for instructors*. Hershey, PA: Information Science Publishing, 140–163.

Bower, M., Woo, K., Roberts, M. and Watters, P. (2006) Wiki pedagogy: a tale of two wikis. Paper presented at *The International Conference of Technology Based Higher Education and Training (ITHET)*. University of Technology, Sydney, Australia, 10–13, July.

Bradley, L., Lindström, B. and Rystedt, H. (2010) Rationalities of collaboration for language learning in a wiki. *ReCALL*, **22**(2): 247–265.

Burke, A. and Peterson, S. (2007) A multidisciplinary approach to literacy through picture books and drama. *English Journal*, **96**(3): 74–79.

Choy, S. O. and Ng, K. C. (2007) Implementing wiki software for supplementing online learning. *Australasian Journal of Educational Technology*, **23**(2): 209–226. http://www.ascilite.org.au/ajet/ajet23/choy.html

Coniam, D. and Kit, M. L. W. (2008) Incorporating wikis into the teaching of English writing. *Hong Kong Teachers' Center Journal*, **7**: 52–67.

Dillenbourg, P. (1999) Introduction: what do you mean by ''collaborative learning?''. In: Dillenbourg, P. (ed.), *Collaborative learning: cognitive and computational approaches*. Oxford, UK: Elsevier Science Ltd, 1–30.

Dillenbourg, P., Baker, M., Blaye, A. and O'Malley, C. (1995) The evolution of research on collaborative learning. In: Reimann, P. and Spada, H. (eds.), *Learning in humans and machines: toward an interdisciplinary learning science*. Oxford, UK: Pergamon, 189–211.

Dirkx, J. M. and Smith, R. O. (2004) Thinking out of a bowl of spaghetti: learning to learn in online collaborative groups. In: Roberts, T. S. (ed.), *Online collaborative learning: Theory and practice*. Hershey, PA: Information Science Publishing, 132–159.

Dymoke, S. and Hughes, J. (2009) Using a poetry wiki: how can the medium support pre-service teachers of English in their professional learning about writing poetry and teaching poetry writing in a digital age? *English Teaching: Practice and Critique*, **8**(3): 91–106.

Elgort, I., Smith, A. G. and Toland, J. (2008) Is wiki an effective platform for group course work? *Australasian Journal of Educational Technology*, **24**(2): 195–210. http://www.ascilite.org.au/ajet/ajet24/elgort.html

Elola, I. and Oskoz, A. (2010) Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning & Technology*, **14**(3): 51–71

Guo, Z. and Stevens, K. J. (2011) Factors influencing perceived usefulness of wikis for group collaborative learning by first year students. *Australasian Journal of Educational Technology*, **27**(2): 221–242. http://www.ascilite.org.au/ajet/ajet27/guo.html

Johnson, D. and Johnson, R. (1986) Computer-assisted cooperative learning. *Educational Technology*, **26**: 12–18.

Judd, T., Kennedy, G. and Cropper, S. (2010) Using wikis for collaborative learning: assessing collaboration through contribution. *Australasian Journal of Educational Technology*, **26**(3): 341–354. http://www.ascilite.org.au/ajet/ajet26/judd.html

Kessler, G. (2009) Student-initiated attention to form in wiki-based collaborative writing. *Language Learning & Technology*, **13**(1): 79–95. http://llt.msu.edu/vol13num1/kessler.pdf

Lee, L. (2010) Exploring wiki-mediated collaborative writing: a case study in an elementary Spanish course. *CALICO Journal*, **27**(2): 260–276.

Moss, D. and Van Duzer, C. (1998) *Project-based learning for adult English language learners*. Washington, DC: National Center for ESL Literacy Education. http://www.cal.org/caela/esl_resources/digests/ProjBase.html

Murphy, P. (2009) Using picture books to engage middle school students. *Middle School Journal*, **40**(4): 20–24.

Murray, D. E. (1992) Collaborative writing as a literacy event: Implications for ESL instruction. In: Nunan, D. (ed.), *Collaborative language learning and teaching*. Cambridge: Cambridge University Press, 100–117.

Myers, J. (1991) Cooperative learning in heterogeneous classes. *Cooperative Learning*, **11**(4).

Pew-Internet & American Life Project (2001) The rise of the instant-message generation. http://pewinternet.org/Press-Releases/2001/The-Rise-of-the-InstantMessage-Generation.aspx

Richardson, W. (2006) *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Thousand Oaks, CA: Corwin Press.

Roschelle, J. and Teasley, S. D. (1995) The construction of shared knowledge in collaborative problem solving. In: O'Malley, C. E. (ed.), *Computer supported collaborative learning*. Berlin: Springer-Verlag, 69–97.

Warschauer, M. (2010) Invited commentary: new tools for teaching writing. *Language Learning & Technology*, **14**(1): 3–8. http://llt.msu.edu/vol14num1/commentary.pdf

West, J. A. and West, M. L. (2008) *Using wikis for online collaboration: the power of the read-write web*. New York, NY: Jossey-Bass.

Wenger, E. (1998) *Communities of practice: learning, meaning, and identity*. Cambridge, UK: Cambridge University Press.

Wilkins, K., Sheffield, C., Ford, M. and Cruz, B. (2008) Images of struggle and triumph: Using picture books to teach about civil rights in the secondary classroom. *Social Education*, **72**(4): 177–180.

Witney, D. and Smallbone, T. (2011) Wiki work: can using wikis enhance student collaboration for group assignment tasks? *Innovation in Education and Teaching International*, **48**(1): 101–110.

Yukselturk, E. and Cagiltay, K. (2007) Collaborative work in online learning environments: critical issues, dynamics, and challenges. In: Orvis, K. L. and Lassiter, A. L. R (eds.), *Computer-supported collaborative learning: best practices and principles for instructors*. Hershey, PA: Information Science Publishing, 114–139.