# Effects of Using Wikis for Developing Saudi EFL Students' Reading and Writing Skills

**Dr. Abdul Aziz  al Fageeh**

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## ABSTRACT

This study was designed to investigate the effects of wikis on developing reading and writing skills of EFL college students. The researcher designed an experimental pretest/posttest control group research method to explore the effects of using wikis on writing instruction outcomes and the learners' reading skills in the Blackboard® environment. Findings showed improvements on the reading/writing performance of students and their performance on the reading test in favour of the experimental participants who received wiki modules on Blackboard. Recommendations and implications for further research and pedagogy were forwarded at the end of the paper.

Keywords: wikis, reading, writing, skill integration, EFL, Blackboard®

# أثر استخدام المحررات الجماعية الحرة في تطوير مهارات القراءة والكتابة لدى طلاب اللغة الإنجليزية بوصفها لغة أجنبية

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## ملخص البحث

تم تصميم هذه الدراسة لاستقصاء أثر المدونات الحرة السريعة في تنمية مهارات القراءة والكتابة لدى طلاب اللغة الإنجليزية بوصفها لغة أجنبية في المستوى الجامعي. وقد قام الباحث بتصميم بحثه وفق منهجية الاختبار القبلي والبعدي المصاحب لمجموعة ضابطة للبحث في أثر تلك المدونات الجماعية السريعة للوقوف على مدى تأثيرها في مخرجات تعليم الكتابة والقراءة بالتكامل باستخدام بيئة البلاكبورد للتعلم الإلكتروني.

وقد أظهرت النتائج تحسناً ملحوظا في أداء الدارسين في القراءة والكتابة لصالح المجموعة التجريبية التي درست موديولات التعلم بالمحررات الجماعية الحرة في بيئة البلاكبورد. وانتهى البحث إلى جملة من التوصيات والتضمينات التربوية.

## Introduction

Literacy is now significantly being challenged by technological literacy. New technologies of online course delivery methods have burgeoned new opportunities for language learners to develop their language skills and possess an awareness of and a familiarity with the new technology-based educational environment (Lantolf, 2007; Swain, Kinnear, & Steinman, 2011). In this regard, Bawarshi & Reiff (2010) aptly observed that "language structure is integrally related to social function and context. Language is organized the way it is within a culture because such an organization serves a social purpose within that culture (Bawarshi & Reiff, 2010, p. 29).

This assumption regarding the influence the diverse nature of the sociocultural environment has on language learning has adduced to the emergence of so-called "social software" (Kolbitsch & Maurer, 2006). These are computer-based communicative learning tools that assist people in communicating, interacting, and collaborating via online communities. A result of the appearance of such social software is the development of the Online Encyclopedia, commonly known as Wikipedia (Goldspink, 2010).

Since 1996, researchers have begun to investigate the role that wikis can potentially play in the classroom, creating much excitement at the theoretical and practical levels of pedagogy (Manion & Selfe, 2012). Educators are currently using social software applications in educational contexts (Evans, 2008; Forte & Bruckman, 2006; Kim, 2008; Kimmerle, Cress, & Held, 2010), given their latent influence in disseminating and building knowledge and/or facilitating learning various educational settings (Bryant, 2006; Parker & Chao, 2007; Wang & Turner, 2004).

Wikis are especially useful for developing writing and reading skills. Prior research investigated the effectiveness of wikis in

language skills development; for instance, Mak & Coniam (2008) examined authentic writing through the use of wikis for developing authentic and creative writing, concluding that this tool is effective in its affordance for collaborative writing. Furthermore, Lee (2004) and Coyle (2010) proved that wikis had a positive impact on the development of students' writing skills through collaborative engagement, too, compared with conventional collaborative methods of writing instruction. Wikis can also be used for improving student interactions in computer-mediated communication (CMC) settings from primary to tertiary educational institutions (Beldarrain, 2006; Boulos, Maramba & Wheeler, 2006; Chen, 2008; Cubric, 2007; Collier, 2010; Chen, Lambert & Kevin, 2010; Hadjerrouit, 2010; Désilets & Paquet, 2005; Hazari, North & Moreland, 2009; Kokkinaki, 2008).

This study is, therefore, designed to glean empirical data to explore the effects of wikis on improving reading and writing skills in EFL college students. The overall purpose is to answer the following research question:

What are the effects of the use of wikis on developing reading and writing skills in EFL college students?

## Literature Review

By definition, wikis are online tools that are used to help interested learners or teachers to create and edit web pages in a way that promotes collaborative content creation and editing and empowers them with a sense of responsibility, ownership and authority in wiki writing (Bold, 2006; Goodwin-Jones, 2003; Raitman, Augar, & Zhou, 2005; Tonkin, 2005). Research findings indicate that wikis can provide user-friendly interfaces malleable enough to allow for collaborative content editing, knowledge building, and knowledge archiving and online interaction – features which help in developing and improving reading and writing skills,

academic writing skills and content-based learning (Caverly & Ward, 2008; Coyle, 2010; Campbell & Ellingson, 2010; Hadjerrouit, 2012; Higdon & Topaz, 2009; Imperatore, 2009; McPherson, 2006; Pellet, 2012; Schwartz, Clark, Cossarin, & Rudolph, 2004; West and West, 2009; Wichadee, 2010).

Established research findings point to the pedagogical value of wikis and demonstrate the usability of wikis (Anderman and Dawson, 2011; Chao and Lo, 2009; Chen, 2008; Hadjerrouit, 2010; Hazari et al., 2009; Leacock and Nesbit, 2007; Lund & Smørdal, 2006; Mattison, 2003; Mindel and Verma, 2006; Nielsen, 2000; Nokelainen, 2006). For instance, research suggests that collaborative learning settings designed to create an online inter-subjective space such as wikis can adequately support student's cooperation. Cabiness, Irvine & Grove (2013) explain this as follows:

> Through the use of wikis, groups of individuals collaborate on various topics by adding text, images, videos, as well as other multimedia elements into one cohesive final product … The intent of wikis is to foster collaboration in an asynchronous working environment (p. 39).

Furthermore, the structure of a wiki is significant in offering students and teachers alike equal access to the wiki content in order for them to co-edit, or coordinate their writing and reading assignments (Cubric, 2007; Hazari, et al., 2009; Larusson and Alterman, 2009). According to Cubric (2007), careful structuring of wikis is conducive to students' engagement in interactive learning which can result in positive outcomes for the students in their learning experience in using the wiki. In this vein, too, Larusson and Alterman (2009) suggested that scaffolding a wiki with project-related materials can help create an elastic structure of the wiki as

well as guide and organise students' interaction in a collaborative way.

Extant literature on wikis has accumulated substantial and compelling testimony in favour of wikis being an ideal collaborative learning pedagogy which incorporates "collaborative learning, peer interactions, group work, sharing, empowering and building a sense of community" (Hewege & Perera, 2013). In this vein, Ruth and Houghton (2009) contentiously claimed that incorporating wikis in the curriculum requires educators to abandon the traditional learning and teaching approaches to the advantage of newfangled ways of thinking, learning and acquiring knowledge, skills and competencies. Therefore, researches advocate the adoption of a wiki thinking approach that challenges current curricular designs especially in the language learning domain.

A good design of the components of a good wiki should include the preformatting of the basic wiki. This would require outlined materials, a communication section, a date section, and a coordination section for guiding multiple users through their information discovery and responsibilities. For better scaffolding of a wiki in order for it to support a variety of learning activities, some components may need to be added, depending on the learning activity (Larusson and Alterman, 2009).

Further, and above all, researchers suggest that for a wiki to be a successful learning too, students should be familiarised with the wiki by learning from the tutorials available through the wiki, in addition to using informal group activities to provide an opportunity to become familiar with the functions and features of the wiki.

Implications of research findings indicate the importance of integrating wiki tools in e-learning activities, either full-fledged virtual classes or blended learning; wikis as such can be used to serve as a medium, not only for the delivery of content, but also in

supporting student knowledge and building collaboration among students (Glassman & Kang, 2011; Hewege & Perera, 2013; Kennedy, 2010; Larusson & Alterman, 2009; Pellet, 2012; Wake & Modla, 2012; Woo, 2011). Providing a flexible and rich learning environment can support students in their own knowledge building, while supporting a collaborative learning environment (Cress & Kimmerle, 2008; Hsu, 2007; Kimmerle, Moskaliuk & Cress, 2011; Manion & Selfe, 2012).

In addition, the wiki designer should regard the vision of the wiki, its significance and its goals in an online course or in a learning project and how it will be used and completed by the participant learners (Allen, 2012; Johnson, 2010; Phuwanartnurak, 2013). A final issue relates to assessment: should assessment occur for using the technology or the creation of content, or both? And in any case, how will they be assessed for their work in a wiki?

Despite the importance of wikis in e-learning, there is noticeable paucity in experimental research studies that explore the effects of using wikis for learning, specifically in language learning. Recently, wikis hold a rapidly and increasingly used language medium, but there is a need for studies that address their use in education and how they can be utilized in school subjects (Lund & Smørdal, 2006).

## Methodology

### Design and Method

This study was experimentally designed to assess the effects of a wiki in an advanced writing online course, utilizing a pretest, posttest, control group design. The participants of the study were students enrolled in a 12-week Writing IV course in a South-western region in Saudi Arabia.

### Instrumentation & Validation

T-tests and gain scores were used to compare students' performance on the reading and writing skills of both the experimental and control groups. Improvement, or gain in achievement or skill acquisition and development, from pretest to posttest could be computed for each participant by subtracting each person's pretest score from his or her posttest score (Gain score = posttest – pretest). The gain score controls for individual differences in pretest scores by measuring the posttest score relative to each person's pretest score.

Test Validity

To compute the consistency of the test items, the researcher used the Pearson Correlation Coefficient to calculate the correlation of the test skills with the test as a whole. Table 1 describes the results.

Table 1: Correlation coefficients of each skill with total score

| Skills | Correlation with total |
|--------|------------------------|
| Reading | .861[**] |
| Writing | .856[**] |

Data in the table above indicates that all correlations are significant at 0.01 level, suggesting that the test has an adequate internal consistency validity.

Test Reliability

The test reliability coefficient was computed using Cronbach's alpha for all items; the Cronbach's alpha was 0.767, which is a satisfactory level for the test.

Participants

Sixty three male students enrolled in the course with various computer literacy skills; they were randomly assigned to the two research groups, with the experimental group enrolled in Writing IV as a blended course, using Blackboard as the main LMS in King

Khalid University. The research was introduced during the first week of instruction, to give the experimental students an opportunity to learn basic wiki development skills as they were enrolled in a blended course. Control students were taught the course skills wholly in a traditional way.

Procedures of the Study

The writing instructor and the students followed a collaborative and constructivist approach to the development of wikis based on the pre-specified objectives of the Writing IV with a focus on essential reading and writing skills. The first step is the design of the content of the wiki modules in terms of designing interesting tasks, assigning students' roles, finding relevant and appropriate resources' links, providing enough or suitable scaffolding, evaluating rubrics for evaluating students' writing products. The tasks of teaching are based on the wiki writing phases and process writing. Therefore, when implementing wikis for students, the teaching plans are designed to provide clear tasks of writing instruction. For purposes of the present study, there were two major phases of implementing the wiki-based approach to teaching reading and writing. The first phase dealt with the tasks and procedures in teaching writing. These included the tasks of pre-writing (planning), writing (drafting), and post-writing (revising and editing) as follows:

1- **Introducing wikis:** the instructor introduces the topic to the students. This step includes the pre-reading phase in which the instructor introduces the reading activity and activates the students' background knowledge.

2- **The Task:** in which the teacher sets the purpose for reading as a pre-writing technique and writing per se, and then assigns students' roles in a collaborative production process where dyads and triads.

**3- The Process of the Wiki Writing:** this stage includes four sub-stages:

  a- *The Reading Phase:* this includes giving instructions, online resources, and guidance for students to complete reading of the textbook passages and the online resources. It also includes feedback opportunities for students.

  b- *The Post-Reading Phase:* this includes checking the students' reading comprehension and skill mastery, and discussing difficulties students encounter while reading.

  c- *Pre-Writing Phase (Planning):* this includes assessing students' needs for writing, using reading of textbook passages and the online resources to write.

  d- Writing Phase (Drafting): in which students complete the task of writing and post their writing on Blackboard wikis. This phase is cyclical as students can go to and fro through this stage by adding, deleting or modifying published wikis.

**4- Evaluation (The Post-Writing Phase):** in this phase, the instructor provides the rubrics on how the writing task is evaluated and the feedback of students' writing. These are available on the Blackboard wikis pages for the students.

    The second was concerned with reading/writing sessions which consisted of 3 phases: pre-writing, reading, and post-writing stages. Below is a summary of the teaching stages of the experiment stages of reading and process writing via wikis.

| Procedures | Phases of Teaching | Purposes |
|---|---|---|
| *Introduction*: (to gain students' attention and introduce the topic) | Pre-writing phase, including webquesting and online reading of relevant materials | -To introduce the activity<br>-To activate students' background knowledge |
| *Task* (doable and interesting) | | -To set the purpose for reading-To assign students' role |
| *Process* (to provide step by step instructions, resources and guidance for students in order to complete the task) | Reading phase | -To provide reading practice and feedback opportunities for students |
| | Post-reading phase/Pre-writing phase (Planning) | -To check reading comprehension and skill mastery<br>-To discuss difficulties & problems students encountered while reading<br>-To help students compile and analyze information<br>-To prepare the language needed for writing |
| | Writing phase (drafting) | -To complete the task |
| *Evaluation* (to provide rubrics on how the task will be evaluated) | Post-writing phase (revising and editing) | -To evaluate the task<br>-To give feedback and suggestions on students' reading/writing tasks |

The study involved an analysis of the performance of two groups of students. The experimental group (30 students) was taught the reading/writing skills in an integrated content approach of instruction involving pre-writing activities with embedded reading and webquests of the choice of the researcher. The control group (33 students) completed the same course with no particular emphasis on writing development through wiki building. The two groups were two sections assigned to the researcher for teaching Writing IV.

Table 2

| Sample Distribution | | Frequency | Percent |
|---|---|---|---|
| Groups | Experimental | 30 | 47.6 |
| | Control | 33 | 52.4 |
| | Total | 63 | 100.0 |

## Hypotheses

This study was designed to test the following null hypotheses ($p \leq 0.01$):

1) There are no statistically significant differences between the mean scores of students in writing and writing before the experiment in the experimental and control groups on pretesting (to ensure group equivalence).

2) There are statistically significant differences between the mean scores of the experimental students' writing skills and the mean scores of the control students on post-testing to the good of post-treatment.

3) There are statistically significant differences between the experimental and the control students in their gain scores on writing skills in favour of post-treatment.

4) There are statistically significant differences between the experimental and the control students in their gain scores on reading skills in favour of the experimental group on post-testing.

## Results

Hypothesis I: Group Equivalence

To test the first null hypothesis in order to make sure that students began the experiment at comparatively similar levels of skills, a t-test was computed to reassure group equivalence; the

obtained t-values and their significance levels are shown in (Table 4) below.

Table 4: Group Equivalence as Measured by All Skills Pretesting

| Skills | Groups | N | Mean | SD | t-value | Sig. |
|--------|--------|---|------|-----|---------|------|
| Reading   skills before | Experimental | 30 | 34.17 | 4.557 | -.165 | .870 |
| | Control | 33 | 34.36 | 4.911 | | |
| Writing skills before | Experimental | 30 | 33.97 | 4.476 | .060 | .953 |
| | Control | 33 | 33.91 | 3.106 | | |
| Reading & writing skills before | Experimental | 30 | 68.13 | 7.754 | .057 | .955 |
| | Control | 33 | 68.03 | 6.687 | | |

The table above demonstrates that there were no statistically significant differences between the experimental and control groups on pre-assessment. In this way, the first hypothesis was verified, and group equivalence was confirmed before the study was started. The other hypotheses of interest are related to the study variables intended to measure students' levels of achievement in the content area, using an integrated reading/writing skills test that tapped into the reading comprehension, and writing skills of the students as a result of integrated reading/writing and content instruction within the Writing IV course. Afterwards, measures of students' achievement on reading/writing were obtained after all students, in both the experimental and the control groups, had completed the Writing IV course with an integrated skills pedagogy using wikis in the case of the experimental group and traditional teaching of the course in the case of the control group.

Hypothesis II: Pre/Post-treatment Comparisons on Reading/Writing Skills by Integration

The data presented in (Table 5 and Table 6) below shows improvement on pretest/posttest comparisons on reading/writing skills. As the t-values indicate, there is a significant difference between experimental and control students (p = 0.000) in favour of the experimental class in the tested skills following exposure to a wiki-based integrated content instruction of the course. The second hypothesis is, therefore, verified.

Table 5: Pre/Post Testing Comparisons of Students' Performances on Tested Skills

| Skills | Groups | N | Mean | SD | t-value | Sig. |
|---|---|---|---|---|---|---|
| Reading skills after | Experimental | 30 | 41.1333 | 3.75760 | 5.372 | .000 |
| | Control | 33 | 35.7879 | 4.10607 | | |
| Writing skills after | Experimental | 30 | 35.9667 | 2.83431 | 2.543 | .014 |
| | Control | 33 | 34.0303 | 3.17692 | | |
| Reading & writing skills after | Experimental | 30 | 77.1000 | 4.86614 | 5.245 | .000 |
| | Control | 33 | 69.8182 | 6.02316 | | |

Table 6: Pre/ Post testing Comparisons of Experimental Group Performances on Tested Skills

| Experimental Group | | N | Mean | SD | t-value | Sig. |
|---|---|---|---|---|---|---|
| Pair 1 | Reading skills before | 30 | 34.17 | 4.557 | -7.909 | .000 |
| | Reading skills after | 30 | 41.1333 | 3.75760 | | |
| Pair 2 | Writing skills before | 30 | 33.97 | 4.476 | -4.192 | .000 |
| | Writing skills after | 30 | 35.9667 | 2.83431 | | |
| Pair 3 | Reading &writing skills before | 30 | 68.13 | 7.754 | 8.715- | .000 |
| | Reading & writing skills after | 30 | 77.1000 | 4.86614 | | |

The results of the quantitative data in the tables above which shows a significant increase (p < .000) in the experimental group's gain scores in comparison with those of the control group's

demonstrates that teaching reading and writing in an integrated way using wikis could yield better improvements in reading/writing together rather than in one skill at a time. Although both the groups showed improvement suggesting that the contents of the course are appropriate, yet the overall differences across all skills as shown in table (5) and (6) indicate that a significant difference can be achieved by simply shifting the emphasis from teaching language skills in isolation to teaching them in an integrated pedagogy. Moreover, the most significant improvement occurred to students' writing skill, mainly because the researcher's focus was mainly on teaching writing skill while reading was utilised in integration with the writing skill. This accounts for the marked difference in the improvement of writing skill.

Based on the  results in the above tables, the data suggests that there are  significant differences between the experimental group research students' performance on the skills of reading and writing before the treatment and after it in favour of the post-treatment assessment; this finding is commensurate with prior research findings indicating that integrated skills teaching is effective in improving language skills improvement (O'Day, 2002; Flora, 1995; King, 1996; Lynch, 1983; Scarcella & Oxford, 1992; Rosenblatt, 1994; Allred, 1994; Oxford & Leaver, 1996; Flower and Hayes, 1994; Oxford, 2001).

## Results on Reading Skills

The effect of the wiki modules on students' reading was investigated and determined in comparison with that of traditional instruction of the Writing IV course to the control group. As shown by the results of the study, students in the experimental group improved their reading significantly compared with the control group (See table 7 and figure 4 below).

Table 7: Results of the t-test of the post-test of the experimental and control group on the reading test.

| Group | N | M | SD | t-valu | df | Sig. |
|-------|---|---|----|--------|----|----|
| Ex | 30 | 104.63 | 2.25 | 62.31 | 63 | .05 |
| Ctrl | 33 | 54.53 | 3.79 | | | |

It is obvious from Table (7) above that there is a statistically significant difference at 0.05 (one-tailed) between the mean scores of the experimental group (M=104.63) and the control group (M=54.53) in the post-test of the reading test in favour of the experimental group as indicated by the t-value (62.31). A pre-test/post-test comparison of the mean scores of the experimental group further disconfirms the hypothesis that there were no statistically significant differences between the experimental group and the control group on pretesting, and further on pre-testing versus post-testing mean scores of the experimental group to the good of posttesting. Table (8) below summarises this finding.

Table 8: Results of the t-test of the pre-test/ post-test of the experimental group on reading

| Experimental group | N | M | SD | t-value | df | Sig. |
|-------|---|---|----|---------|----|----|
| Pre-test | 30 | 54.30 | 4.23 | 58.62 | 60 | .05 |
| Post-test | 30 | 104.63 | 2.25 | | | |

Table (8) above indicates that there is a statistically significant difference between the mean scores of the pre-test (M= 54.30) and post-test (M= 104.63) of the experimental group students on overall reading test in favour of the post-test. Hence, such difference may be due to the effect of the experimental treatment exemplified in the Reading and Wiki Writing modules which the experimental group received. This difference may be attributed to the effect of the experimental treatment exemplified in the wikis modules for developing reading and writing which only the experimental group received.

## Discussion

Regarding the writing skills and the integrated reading/writing skills, this study found that wikis helped students to produce high quality pieces of writing by increasing writer participation and providing young writers with greater enthusiasm, motivation and greater satisfaction. This finding is compatible with prior research which found that student participation in online asynchronous discussion or other collaborative tasks sometimes results in a low level construction of knowledge (Bryant, 2006; Parker & Chao, 2007; Wang & Turner, 2004; Campbell & Ellingson, 2010; Hadjerrouit, 2012; Kimmerle, Cress & Held, 2010; Schwartz, Clark, Cossarin, & Rudolph, 2004) or sharing of information. The literature reviewed provided clear-cut evidence that wikis can promote collaborative reading/writing work among college students in a constructivist fashion (Campbell & Ellingson, 2010; Hadjerrouit, 2012; Schwartz, Clark, Cossarin, & Rudolph, 2004; Wichadee, 2010). Reviewing the student work submitted over one semester – the duration of the present study – provides concrete evidence that the literature is correct. Implementing wikis in this study has proven that it does enhance student writing and student reading and writing by integration which is also congruent with prior research (Kokkinaki, 2008; King, 1996; Hewege & Perera, 2013; Kennedy, 2010; Larusson & Alterman, 2009; Pellet, 2012).

The improvements can be justified by the fact that peer editing and collaboration increase student awareness of problem areas in their own and in their peers' writings which drew from authentic, meaningful, and active experiences of and on their own. In the wikis students read the work of an unknown author and offered critiques; this further adds up to the development of reading and collaborative writing tasks.

The present research findings further suggest that wikis can be effective learning/teaching tools that may contribute to the

improvement of students' writing and reading; this finding is commensurate with many previous studies (Chen, 2008; Mak & Coniam, 2008; Tonkin, 2005; Lee, 204). The significant improvement on the participants' score was due to the fact that students realized that their written work was read, reviewed, and corrected by all team members. Collaboration plays an important role; it encourages them to learn from others and write more carefully. Furthermore, the working process is systematic and becomes a means for reconsidering both content and organization. It helps the students to raise their awareness of creating a good piece of writing. This interpretation is consolidated by findings from prior research (Caverly & Ward, 2008; Coyle, 2010; Higdon & Topaz, 2009; Imepratore, 2009; McPherson, 2006; West & West, 2009).

The use of wikis for developing reading and writing skills in the context of an advanced writing course testified to the benefits of wikis as evidenced by the findings borne out from this research. A further potential explanation for improvements in reading and writing performance can be attributed to the opportunity made available by wikis for all students to get engaged in a rich discourse in a much less stressful or stringent learning environment. The creation of wikis used to occur in a non-threatening environment where students were encouraged to promote their critical thinking skills as evident in the way they were asked to read online, develop their own writing and post it, and then follow up contributions to the wiki more frequently to improve it. The flexible environment of a wiki supports collaborative learning which can have a positive impact on student learning, leading to improvements in integrated reading and writing instruction as well as in improving critical thinking skills upon reading comprehension – a finding that reverberates in the literature (Allen, 2012; Cress & Kimmerle, 2008; Hsu, 2007; Johnson, 2010; Kimmerle, Moskaliuk & Cress,

2011; Larusson & Alterman, 2009; Manion & Selfe, 2012; Phuwanartnurak, 2013).

Consistent with previous research (Cabiness, et al., 2013), the use of wikis realises the goal of education as not only demonstrating content memorisation and understanding, but also fosters life-long learning skills, such as critical thinking and problem-solving which is also achievable in wikis.

Wiki writing tasks usually involve a constant idea improvement process, which is a cyclical learning process involving reading before writing, writing, editing, reading and copy-editing. As noted by Lowry et al. (2004), wiki-writing is a collaborative writing activity which constantly involves the learners in brainstorming, outlining, drafting, reviewing, revising, and copyediting. These key activities tend to occur in dynamic and iterative ways. Through experiencing the dynamic process of collaborative writing, the participants can spontaneously get engaged in idea generation, production and improvement throughout the constant process of writing, rewriting and editing. Congruent with prior research (Bryant, 2006; Parker & Chao, 2007; Wang & Turner, 2004; Campbell & Ellingson, 2010; Hadjerrouit, 2012; Kimmerle, Cress & Held, 2010; Schwartz, Clark, Cossarin, & Rudolph, 2004; Scardamalia, 2002), wiki-agogy involves the constructive use of online reading sources which requires an understanding and assimilation of the sources with a critical perspective.

## Implications for Pedagogy

The major contribution of this study is to explore the effects of wikis to support learning integrated reading and writing on the one hand and reading on the other in the collaborative medium of Blackboard. The findings of this study provided insights on the factors that influenced the collaborative literacy community.

Indeed, offered useful guidance for practitioners or instructors in higher education to help learners experience successful knowledge building in online collaborative learning context. However, wiki-agogy could only be useful only when learners were well-prepared to participate in the knowledge building process. Participants must be encouraged to suggest new ideas freely and not to be afraid of negotiate different ideas. Instructors can provide specially designed training on key elements of collaborative learning or engage them in a smaller scope of knowledge building tasks before starting larger of more complex knowledge building activities. Also, learners need to be provided with opportunities to practice negotiation skills and project management skills. Providing training and tasks for exercising collaborative knowledge building skills will help learners internalize such skills and help develop a culture of progressive knowledge advancement (Hewitt & Scardamalia, 1998).

In the collaborative writing activity, to avoid juxtaposition of individual contributions, use of collaborative writing strategies are necessary but not sufficient for reaching the higher phases of collaborative construction of knowledge (Onrubia & Engel, 2009). Moreover, the tool should be designed to support 'group awareness'. However, much of the potential success of this teaching tool on what language instructors are keen to do to encourage language learning using wikis.

## Recommendations for Further Research

Several potential areas for future research should consider the use of written discourse within the topical framework of integrated reading/writing courses as well as the potential problems identified with assessment and evaluation of assignments. Research should focus on the use of wikis in synchronous networked environments, rather than in online classes that mirror the traditional classroom in order to help understand how and when students monitor each

other's, as well as their own, learning behaviour. Further research should also investigate the effects of incorporating multimedia in wikis on developing listening and reading skills. Future research should also furnish us with more findings about the quality of using approach in language learning, and it should help us to infer further adjustments to better meet the learning needs of language students.

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