

## Affordances of Wikispaces for Collaborative Learning and Knowledge Management

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### ABSTRACT

A wiki, namely, Wikispaces is a component of Web 2.0 technology tools. It is utilised as a peer editing platform for students in correcting errors made by them in their essay writing. The purpose of this article is to find out how the affordances of Wikispaces encourage collaborative learning and knowledge management in correcting errors in L2 students' essays. The experience of using Wikispaces throughout the peer editing context and its affordances are described extensively based on three perspectives: pedagogical, social and technological. Data was obtained from online-writing records (students' essays), field notes, questionnaire, reflective research diary, and feedback form. The qualitative data are analysed thematically and then triangulated. In terms of pedagogical affordances, Wikispaces supports dual applications of pedagogical approaches (teaching and learning). In relation to social affordances, Wikispaces promotes a variety of interactions (peer-peer and students-teacher interactions) and the dynamics of the activities involved (individual, group and whole-class work) provide a safe and comfortable environment for social interaction and add possibility for asynchronous communications to happen through discussion forums and personal messaging. With respect to the technological affordances, it is a free, user-friendly, and easily accessible web-based tool provided via the Internet. Wikispaces secures backups as well as supports flexible learning environment with the presence of two features: page reverting and autosave. This study implicates the needs to consider the three mentioned affordances of wikis (pedagogical, social and technological) as a platform for teaching and learning.

**Keywords:** Information and Communication Technology (ICT) affordances model; wiki; collaborative learning; knowledge management; Wikispaces

### INTRODUCTION

The World Wide Web (known as "WWW", "Web" or "W3") has changed the way people interact, communicate, share information and acquire knowledge. Since its inception in the early 1990s, the World Wide Web has evolved from a collection of static pages to a platform

for interactive web applications such as web searching, browsing, chatting, and collaborating. Web 2.0 is a name given to these many new uses of the World Wide Web which have emerged since the beginning of its second decade. The term “Web 2.0” is defined as a perceived second generation of Web development and design that aims to facilitate communication, secure information sharing, interoperability, and collaboration on the World Wide Web (Enonbun, 2010).

A wiki, namely, Wikispaces is a component of Web 2.0 technology tools. A wiki is a web based publishing tool that offers learners and teachers editable virtual space for sharing information and knowledge (Zorko, 2009). Due to this basic wiki functionality, Wikispaces has been chosen as a peer editing platform for second language learners, as in the present study, to assist them in correcting errors that they made in their descriptive essay writing. This alternative way of error correction became more apparent as there was a need to increase the students’ awareness of the errors they made in writing and thus led them towards autonomous learning instead of depending on their teachers. However, during the study, the Wikispaces was found to have great potentials in the teaching and learning in terms of encouraging collaborative learning and knowledge management. Its features and capabilities involved throughout the study support the Information and Communication Technology (ICT) affordances.

The purpose of this article is to investigate how the affordances of Wikispaces encourage collaborative learning and knowledge management in correcting errors in students’ essays. An experience derived from a case study of using Wikispaces throughout the peer editing context and its affordances are described extensively based on three perspectives: pedagogical, social and technological. These three key components are the fundamental elements of a generic model for guiding the integration of ICT into teaching and learning (Wang, 2008).

#### **WIKIS AS COLLABORATIVE LEARNING TOOLS**

Wikis are increasingly gaining popularity as a collaborative tool in various educational settings due to the potential they bring to teaching and learning (Clark & Mason, 2008). The simplicity and flexible nature of wikis allow a group of users to interactively initiate and evolve a hyper-linked set of web pages using a simple markup language (Mohamad Nordin & Klobas, 2010). Most importantly, wikis, seen as easy-to-use collaborative technologies, provide ample learning opportunity for students to gain autonomy, acquire independence, and become creative users (Zeinstejer, 2008). The teacher’s role here is often that of a moderator or as a facilitator rather than an instructor (Mohamad Nordin & Klobas, 2010).

In recent years, various research studies have focused on the use of wiki as a collaborative learning tool at primary, secondary and tertiary levels of education. For example, Woo, Chu, Ho and Li (2011) explored the challenges and potential benefits of a wiki for students and teachers in primary-five English-language class in Hong Kong. They used a wiki to scaffold students’ understanding during their collaborative writing process. The findings showed that the students enjoyed using the wiki and the overall perception was that it helped foster teamwork and improved writing. Besides that, the tracking functionality of the wiki gave in-depth information about the types of editing students made and helped the teacher to provide necessary support and feedback as well as scaffold their editing process.

Furthermore, Forte and Bruckman (2007) and Mohamad Nordin and Klobas (2010) claim that secondary school students gain deeper understanding and share the knowledge collaboratively in their respective schools. In using wikis, the students are not only learning to write collaboratively but they are also learning how to build a sense of community and

teamwork in completing tasks such as negotiating with others to agree on correctness, meaning and relevance (Richardson, 2006; Mohamad Nordin & Klobas, 2010). In essence, the students begin to teach each other and learn on their own. They appreciate the recognition of what sharing their work can bring (Mohamad Nordin & Klobas, 2010; Chong Moi Lian, Tan Bee Hoon & Mardziah Hayati Abdullah, 2011).

Finally, examining the use of wiki in the context of higher education reveals that wiki technology has many uses such as for documentation, collaborative writing, committee work, communication and education. Judd, Kennedy and Cropper (2010) assessed students' collaborative behaviour based on their contributions to a wiki-based shared writing task using a variety of text and time based metrics. On the other hand, Matthew, Felvegi and Callaway (2009) studied on how contributing to a class wiki affected the learning of pre-service teachers enrolled in a language arts methods class. The wiki in both studies proved to be a good technology for online collaborative learning and writing process.

### **WIKIS AS A KNOWLEDGE MANAGEMENT TOOL**

Previous studies have found that wikis can support an organization's knowledge management regardless of the fields and purposes in which they are used. For instance, in the field of education, Benckendroff (2009) examined the use of wikis as an assessment tool to help first year students develop a range of knowledge management skills, including creative collaboration, consensus building and technical literacy. The study provides an exploratory analysis of students' attitudes toward the use of wikis for a collaborative assessment task. The results indicate that most students perceived wikis to be flexible, convenient and a fair pedagogical technique for collaborative learning. While many students preferred the wiki to a paper-based assessment, some students were not convinced that the task produced better collaborative outcome. Benckendroff (2009) suggests that a staged wiki assessment might overcome some of the perceived shortcomings reported by the students. Individual contributions should be evaluated at various points during the duration of the task.

In terms of teacher professional development, Sheehy (2008) and Zhou and Gong (2008) used Wikispaces and Eduwiki as the teachers' knowledge management platform. They believe that teacher professional development is most effective when delivered in the context of practice instead of in separate professional development opportunities. Thus, Sheehy (2008) focused on the use of Wikispaces in a community of practice to strengthen K-12 education, whereas, Zhou and Gong (2008) described the needs analysis and architecture of Eduwiki in schools, which focus on wiki basic service, personal space, group space, resource centre and system management. Both studies revealed positive findings with regard to the use of wikis as knowledge management tools in schools. Sheehy (2008) concludes that wikis are the medium of communication that fitted the social dynamic imposed upon teachers in K-12 schools. On the other hand, Zhou and Gong (2008) confirm that Eduwiki is a suitable tool for monitoring and recording the processes of teacher's work as well as preparing lessons collaboratively.

The reviewed studies have established evidence that wiki can construct a highly efficient e-environment for collaborative research as well as provide a collaboration platform for knowledge construction and sharing. Due to the benefits gained and opportunities in promoting and enhancing individual and collaborative learning, the present study seeks to answer this research question: "How do the affordances of Wikispaces encourage collaborative learning and knowledge management in correcting errors in students' essays?". This study adds to knowledge on how the use of Wikispaces can be applied for both students and teachers especially during the peer editing activities and error corrections in writing. As such, the affordances of Wikispaces are seen as necessary to be fully utilised in order to have

a better understanding about their functions in making meaningful online learning for students and training them towards becoming autonomous learners.

#### **INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AFFORDANCES MODEL**

The term ‘affordance’ refers to “the perceived and actual fundamental properties of technologies that determine the usefulness and the way they could possibly be used” (Wang, Woo & Chai, 2010, p. 72). The information and communication technology (ICT) affordance model is a technology analysis model developed by Wang, Woo, and Chai (2010). The model analyses the affordances of ICT tools from three perspectives: pedagogical, social and technological. Pedagogical and social affordances are strongly supported by cognitive constructivism and social constructivism, respectively. Cognitive constructivism supports the pedagogical design activities in terms of satisfying individual learner’s needs and learning intentions. In addition, teachers as facilitators must scaffold students understanding during a learning process. On the other hand, social constructivism supports social design of an online learning environment in terms of providing a safe and comfortable space, in which learners can willingly share information, communicate and collaborate with others. The following sections give an account of what pedagogical, social and technological affordances are.

#### **PEDAGOGICAL AFFORDANCES**

Pedagogical affordances refer to those characteristics and features of an ICT tool that determine if and how a particular learning activity could possibly be implemented within a given educational context (Wang, Woo & Chai, 2010, p. 73). They support the implementation of various pedagogical approaches such as case-based learning, co-operative learning and collaborative learning.

In another related study on affordances analysis, Wan Fareed (2010) explains that pedagogical affordances have dual applicability-for teaching and learning purposes. As for the teaching purposes, pedagogical affordances of technologies enable teachers to carry out their daily lessons in many effective ways which engage students in meaningful learning and knowledge integration. Here, the teachers are the ones who decide on the appropriate strategy and ensure that the chosen strategy would fit the purpose of the lessons.

On the other hand, in terms of students’ learning purposes, the ICT tools should support the student activities in any group dynamics (group, pair or individual work). Most importantly, a good ICT tool should promote learning as something that is enjoyable and appealing. This is to ensure that students would be motivated to use the ICT tool as a medium to obtain more in-depth knowledge.

#### **SOCIAL AFFORDANCES**

Social affordance is defined as the ability of the ICT tool to facilitate social interaction. It serves the purposes of establishing, supporting and maintaining a variety of interactions and their dynamics. In addition, the social affordances of an ICT tool should cater for both synchronous and asynchronous communications (Wan Fareed, 2010). Real time synchronous communication tools such as chat, instant messaging (IM) and video conferencing enable students to share their ideas and obtain immediate feedback. Conversely, asynchronous communication tools such as email, discussion forums, weblogs, and wikis can be more convenient, since they provide teachers and students with more control over the pace of education and work during times that are most appropriate to them (Kuljis & Lines, 2007). The use of such modes of communication not only provides opportunity for students to

choose the option that best suits their learning styles, but also promotes friendly interactions and avoids aggression between individuals.

#### **TECHNOLOGICAL AFFORDANCES**

Technological affordances refer to the usability of ICT tools (Norman, 1988). They are regarded as precondition for networked learning environments, which give the designer, or administrator an understanding of the space of opportunities that technical artefacts have in accomplishing a set of tasks efficiently and effectively (Hedestig & Soderstrom, 2008). Neglecting the existence of technological affordances would put an ICT tool at risk of being useless (Wang, 2008). Therefore, there is a need to ensure that the ICT tool provides ease of learning especially for beginner users, ease of use when users gain more experience over time and aesthetic value, in order to motivate and engage learners into the learning process. For an online or web-based ICT tool, the technological affordance should support its availability at all times and provide easy access for speed, convenience and security purposes to avoid people from refusing to use such a technology tool. In addition, there should also be availability of user interface customisation such as adjusting the positions and colours of the screen components, or adding and removing certain elements.

### **METHODOLOGY**

#### **PARTICIPANTS AND PROCEDURES**

This research employs a case study design involving 25 Form Four students (aged 16 years old) who were residing in a Smart School hostel in Perak, Malaysia. A case study has been chosen for it would help the researchers to understand the chosen context by carrying out an in-depth analysis. The students are chosen based on two criteria: possess an intermediate language proficiency level and has got to be computer literate. The initial meetings with the Head of English Language Panel and ICT Coordinator revealed that all the students are in the intermediate language proficiency group and they are computer literate since they had been trained to use computers since Form One. They had learned basic computer programs such as Microsoft Word, Microsoft Publisher and Microsoft PowerPoint. Besides that, they had been taught how to search for information on the Internet and how to use the Smart School Management System (SSMS) through a subject called Information and Communication Technology Literacy (ICTL). Students were then randomly divided into five groups. They were instructed to manage their peer editing activities for the study via Wikispaces, an open source online wiki application for collaboration. A leader was appointed for each group to make sure that the layout of the writing page was inherent with the requirement of the study. This included the standardization of fonts, spacing, adding lines after each essay and making a table of contents. Thus, with the assistance of the group leaders, students knew where they should post and edit their essays on Wikispaces. The more encouraging aspect for students' participation was the access to Wikispaces which is freely available online.

This study lasted for five weeks due to the students' year-end school holidays. It was divided into three phases in order to plan the data collection systematically. Phase 1 was the preparation phase and the students were required to attend three workshops: Introduction to Wikispaces, Wikispaces Tutorial, and Effective Peer Editing. Students then wrote and edited their descriptive essays of about 350 words entitled 'Describe an embarrassing experience in your life' and 'My favourite day of the week' based on peer editing checklist, which was employed in Phase 2. The two topics for the descriptive essay writing were from the SPM English 1119 past year's questions. The rationale for choosing two descriptive essays was because these two essays required students to use different types of tenses. The first

descriptive essay (DE1) required the use of past tense while the second descriptive essay (DE2) involved the use of present tense. As for peer editing activities, five types of common errors found in students' writings were the focus of the investigation, which are grammar, spelling, word choice, punctuation and sentence structure. These errors were chosen based on several error analysis studies conducted by local researchers including Saadiyah Darus and Kaladevi (2009), Wee, Sim and Jusoff (2009), and Ruziah (2006). Finally, all the groups submitted their feedback on the use of peer editing through Wikispaces using feedback form, questionnaire and semi-structured interview questions.

The feedback form was distributed to the students with the aim of getting their response on two aspects: peer editing and revision sessions, and the characteristics of Wikispaces towards the study. In addition, a questionnaire comprising 17 items was designed to find out the students' perception of using peer editing through Wikispaces in correcting L2 students' writing. This was further complemented the semi-structured interview, in which by 10 selected students participated. A total of nine questions were asked during the 5-10 minutes interview, which took place at the end of the data collection period. Question 1-5 addressed three aspects of Wikispaces: usefulness of the comments and benefits from peer editing, and giving comments to others. On the other hand, Question 6-9 aimed at seeking for more information on language aspects that students find most useful, least useful, frequently given language feedback and feedback on language that they received from their peers.

#### **DATA COLLECTION AND ANALYSIS**

The data were collected using multiple sources including online-writing records (students' essays), field notes, questionnaire, reflective research diary and feedback form. Field notes were written by the researchers during each session. Four aspects were focused during the observations: students' involvement throughout the peer editing sessions, students working online in groups and whole class, Wikispaces as the peer editing platform and students' interest and initiative of learning. The reflective research diary was recorded by the researchers on all their experiences including the activities, thoughts and feelings throughout the study. They jotted down the problems faced by the students during the data collection period and thought of further improvements in order to avoid such situation recurring in the future. The reflection entries were written immediately after the end of each session so that the recollection of events was still new and fresh. These were organised by date, time and number of visits the researchers made to the school. The main source of data was the written document analysis which included students' essays, field notes and reflective research diary. The questionnaire and feedback form were used to compliment and seek further elaboration and clarification of the findings. All the qualitative data were analysed thematically and several themes were identified for each affordance of Wikispaces. Data from the questionnaire are presented in the form of mean scores followed by explanation.

#### **FINDINGS AND DISCUSSION**

As aforementioned in the literature review, wikis have the potentials to support online collaborative learning and knowledge management in the context of education. However, in this article, the potentials of Wikispaces do not emerge by themselves solely; they are heavily dependent on the ICT affordances. Thus, this section describes extensively the experience of using Wikispaces throughout the peer editing context and its affordances based on three perspectives: pedagogical, social and technological.

## PEDAGOGICAL AFFORDANCES

### SUPPORTING DUAL-PURPOSE TEACHING AND LEARNING APPROACHES

Wikispaces supports dual-purpose teaching and learning approaches: student-centred learning environment and teaching purposes.

#### (i) Student-centered learning environment

In the student-centered learning environment, data from field notes revealed that Wikispaces encourages collaborative learning among students by carrying out the peer editing activities on the page editor plus the use of numerous functions available on the text editor toolbar. The page editor is a WYSIWYG (What-You-See-Is-What-You-Get) dashboard that permits the students to create, edit, share and publish the dynamic content on one page at their own pace. Each of the editable pages on Wikispaces has an “edit” button at the top of the page. By clicking on the “edit” button as shown in Figure 1, students can begin editing the wiki pages simply from a blank space to publishing their essays that are required as part of the peer editing process. In addition, the text editor toolbar which is also known as the most salient feature of Wikispaces is very useful to the students especially during the peer editing sessions. The page editor and the text editor toolbar are shown in Figure 2 and Figure 3 respectively.

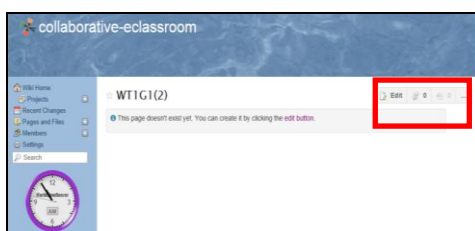


FIGURE 1. The “Edit” Button

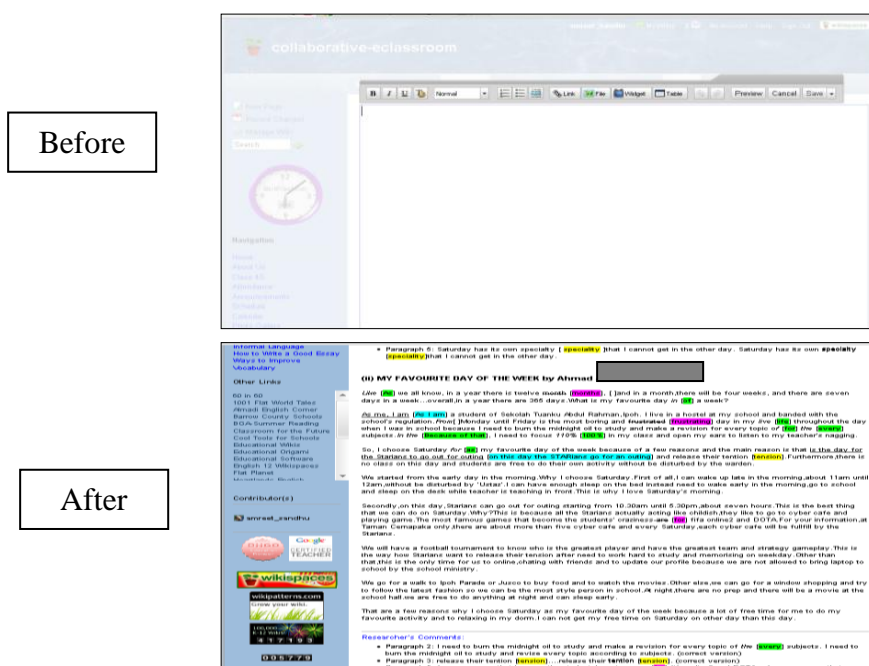


FIGURE 2. Blank Page vs. Edited Page

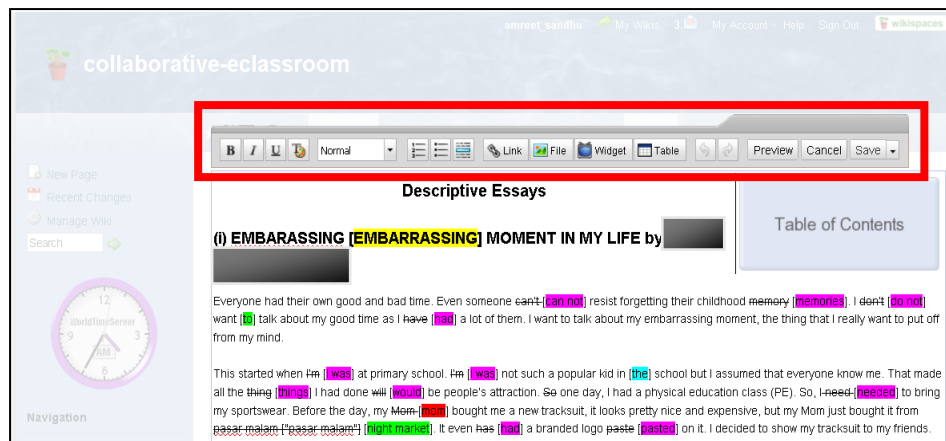


FIGURE 3. Text-Editor Toolbar

Figure 4 shows some of the examples taken from Wikispaces on the combination use of functions provided by the text-editor toolbar. All the functions including *bold*, *italic*, *colour and style*, *strikethrough*, *underline*, *shadow*, *preview*, *cancel* and *save*, were employed by the students in the process of correcting other students' essays.

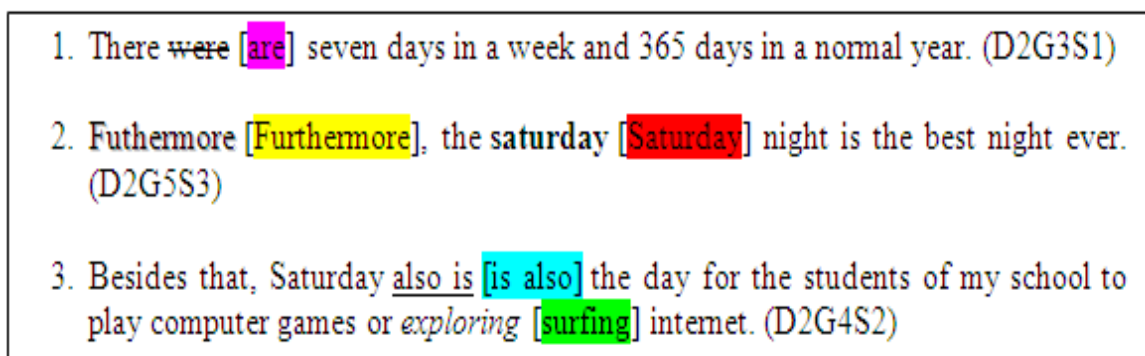


FIGURE 4. Combination Use of Functions Provided by the Text-Editor Toolbar

Referring to the examples given in Figure 4, each of the language aspect is edited based on the peer editing checklist. Firstly, the edited version in sentence no. 1 refers to grammatical aspect. Thus, according to the peer editing checklist, the grammatical aspect is edited by using the strikethrough function for the incorrect version and pink highlighting for the correct version. Subsequently, the edited versions of spelling (highlighted in yellow) and punctuation (highlighted in red) in the second sentence, respectively, have used the shadow and bold functions that were available on the text-editor toolbar. Lastly, the third sentence illustrates the edited versions of sentence structure (highlighted in blue) and word choice (highlighted in green). Both of these edited versions utilised the underline and italicised functions. This made the peer editing process more organised and structured as the checklist and the toolbar functions helped everyone to employ the same function of reference when editing.

Findings from the reflective research diary as depicted in Figure 5 indicate that enriching online collaborative environment such as Wikispaces also stimulates students' active participation and meaningful learning in both groups and the whole class. They could take turns reading essays, editing errors, sharing knowledge and giving feedback on each other's essays throughout the peer editing sessions. As depicted in an example of the Day 8 reflection note (Figure 5), the researchers reflected on several students' active participation in carrying out the peer editing activities including correcting sentence structure, punctuation and word choice errors.



The students could now easily correct most of the errors. This time around, the majority of them looked at more challenging language aspects such as punctuation, word choice and sentence structure. For instance, while I was walking around the computer lab, I noticed Student 20 peer editing the following sentence structure errors in Student 1's essay. "That is the reasons I [These are the reasons why I] like Saturday than the other day [days] in the week." (D2G1S1)

On the other hand, Student 1 and Student 15 who were seated in the same row busy peer editing several punctuation errors in both Student 22 and Student 23's essays. Student 1 edited all the punctuation errors on commas whereas Student 15 looked for punctuation errors on capital letters and periods. The following are some of the sentences that have been peer edited by Student 1 and Student 15.

**Comma**—"For me [ ] as a Starian, Saturday is a great day because on this particular day, I can get [go] back to my home as I live in [at] hostels [hostel] in my school." (D2G5S2)

**Capitalisation**—"Besides that, my friends and i [I] usually play futsal in front of the yellow house." (D2G5S3)

**Period**—"Furthermore [Furthermore], I can do my homework with calm [ ]" (D2G5S2)

Apart from that, Student 9 was seen editing word choice error found in Student 6's essay (during peer editing within groups). Student 9 edited the word 'take' to 'choose' which was considered more appropriate in the context of that sentence. "As for me, I take [choose] Saturday as my favourite day of the week because it is an 'outing day' for me and my beloved colleagues." (D2G2S6)

Indeed, the types of peer editing activity involving small group and whole class collaboration had encouraged active participation of the students in correcting each other's errors and further led them towards meaningful learning.

FIGURE 5. Day 8 Reflection Note

In particular, the use of peer editing through Wikispaces encourages the involvement of small groups and whole class collaboration in correcting L2 students' writing. This can be seen in Figure 6, which shows how the students collaboratively carried out the peer editing on each other's essays.

<p>Without [without] thinking, I screamed loudly, "SNAKE! SNAKE!". With the knife in my hand that I used to cut the frog, I stabbed the body of the snake continuously [continously]. Everybody came to my table and surrounded me. After that, everyone saw me and laugh [laughed] at me, [ ] the [The] laugh [laughter] that came from Khalil was the most clear that I heard. My friend, Ahmad, calmed me down and showed me the snake. And the snake was a rubber snake that looked like a real snake that [which] was actually a fake snake.</p> <p>After that, I felt calm and relaxed. Mr. Jamal, was really angry with the incident and asking everyone in the class who throwed [throw] the fake snake to me. Tasnim said to Mr. Jamal that Khalil throw [threw] the fake snake to me. She saw Khalil throw [threw] the fake snake to me when Khalil was standing behind me. Mr. Jamal was really angry with Khalil and asked him to go and see [to go out and met] the dicipline [discipline] teacher. I heard that Khalil was sent to detention class for two weeks. For me, everyone was laughing at me because I was very brumous when facing the fake snake. It was the ombraosing [embarrassing] moment in my life.</p>	<p>Grammar</p> <p>Spelling</p> <p>Punctuation</p> <p>Word Choice</p> <p>Sentence Structure</p>
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FIGURE 6. How Students Worked Collaboratively in Correcting Errors in Each Other's Essays

At the initial stages, students were required to create and publish their essays according to groups. Once they had published, they then shared their individual essays with others. Two cycles of peer editing were conducted: peer editing within the groups and with the whole class. During this time, the students were observed to take turns to identify and correct errors in the descriptive essay writing. One student pointed out all the spelling errors (highlighted in yellow) such as 'withought', 'continously', 'dicipline' and 'embraassing' in Figure 6. This was followed by another student who corrected the grammar errors (highlighted in pink) and punctuation (highlighted in red). The peer editing process went on well with students taking turns to read the essays and edit the errors until the end of the data collection period. Figure 6

shows how students worked together collaboratively in correcting errors in each other's essays.

In addition, the field notes revealed that the majority of the students showed great interest in editing each other's essays on Wikispaces because of the text-editor toolbar that resembles the word processor. Research by Lu and Serrat (2010) indicate that wikis typically offer powerful and integrated word processing, spreadsheet, database, drawing and presentation capabilities, and allow authorized users to copy and paste content across these. Similarly, Wikispaces provides an editor tool that has a visual mode and a plain text mode. The visual editor lets the students view the final look and feel of a page before saving it, whereas the latter allows the students to edit the raw wikitext on a page. In short, it is just like using a word processor for basic editing and formatting purposes.

In general, these findings are consistent with findings from previous studies which have shown that the use of wikis can encourage effective collaboration among students and teachers in virtual classrooms (Forte & Bruckman, 2007; Mohamad Nordin & Klobas, 2011). Most importantly, in terms of data obtained from the feedback forms, the findings of this study correspond to the characteristics of wikis, namely, Wikispaces in promoting collaboration, knowledge sharing and easy access (Parker & Chao, 2007). Additionally, Wikispaces can serve as an easy web-publishing tool that allows anyone to edit any page, easily searched keywords and fosters feelings of ownership (Parker & Chao, 2007).

## (ii) Teaching purposes

As for the teaching purposes, Wikispaces allows the teacher who plays the roles of administrator, moderator and facilitator to manage students' data and keep track of their learning process via history logs. The history logs as shown in Figure 7 display all the changes that the students made throughout the peer editing sessions. The detailed information including wh-questions of the peer editing process could be tracked simply by clicking on the history logs. Questions like 'who?', 'when?', 'what?', 'how?' and 'which?' give sufficient information on who edited what during the peer editing sessions via Wikispaces. This enables the teacher to easily monitor the students' performance and intervene when necessary.

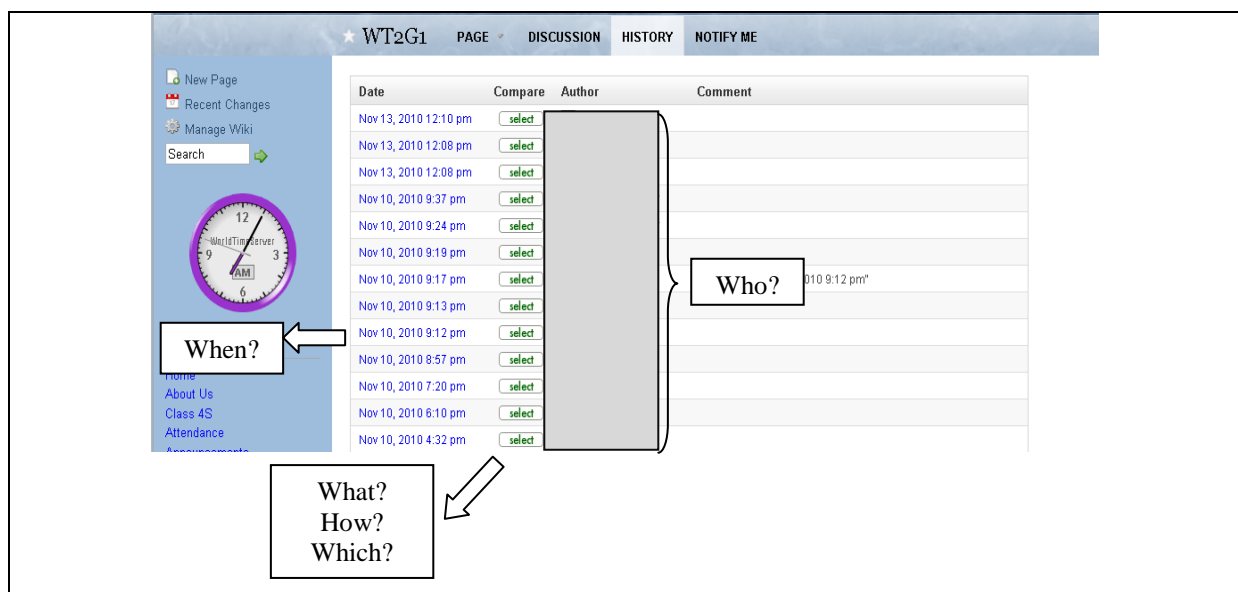


FIGURE 7. History Logs

In addition, the presence of visual page histories allows the teacher to see the differences between any two versions as shown in Figure 8. This function is essential in order to determine if someone had vandalised or made unnecessary changes to the wiki pages. The words that are highlighted in green are inserted by the students whereas the red highlighted words are deleted ones. In Figure 8, Student 5 edited the errors in an essay by deleting the incorrect words like 'yhat', 'mu', 'assistance', 'dreg' and 'me'. The student then inserted the correct words highlighted in green.

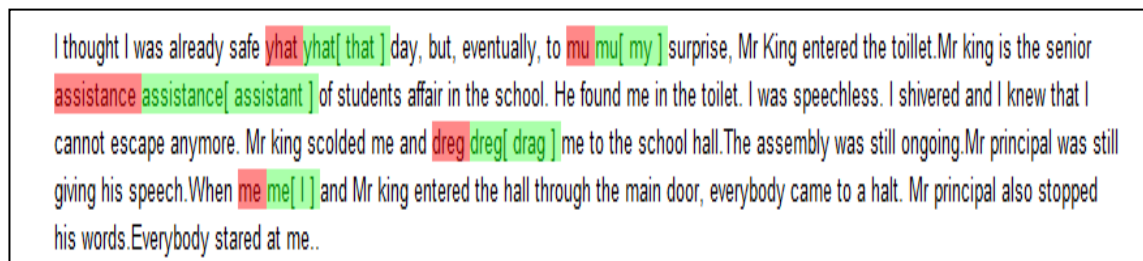


FIGURE 8. Visual Page Histories

In enhancing knowledge sharing among members of online learning environment, the teacher provided feedback to the students in the comment space. Indeed, Wikispaces offers a room for the teacher to give feedback to the students on both wrongly edited and unidentified errors (Figure 9). The teacher explained and showed the correct way of editing the errors in the comment space placed under each of the essays. To illustrate, the teacher showed the correct version of a sentence structure error identified in paragraph 5. Instead of 'All of my classmate was', it should be edited as 'All my classmates were'. The word 'All' in the sentence is considered as a countable noun that takes the plural form 'All my classmates were'. This is very useful for students to make them aware of the errors that they made during the peer editing process, and thus, learn not to repeat similar error in the future. In fact, two studies conducted by Liu (2008) and Magno and Amarles (2011) also support this finding. They found that the written corrective feedback provided by the teacher helped the students to reduce errors in their writing as well as improve accuracy over time.



FIGURE 9. Comment Space

Apart from that, the teacher also posts multimedia materials, handouts, notes, and tutorials related to peer editing, common errors, descriptive essay writing and tips on how to write

good essays at the navigation sidebar. As shown in Figure 10, the navigation sidebar is used as an index to wiki pages to inform students of the objectives, announcements, latest updates and schedule of the peer editing activities. This means that the information is just a click away and is made convenient for the students to seek for clarifications about peer editing through Wikispaces at their own pace.

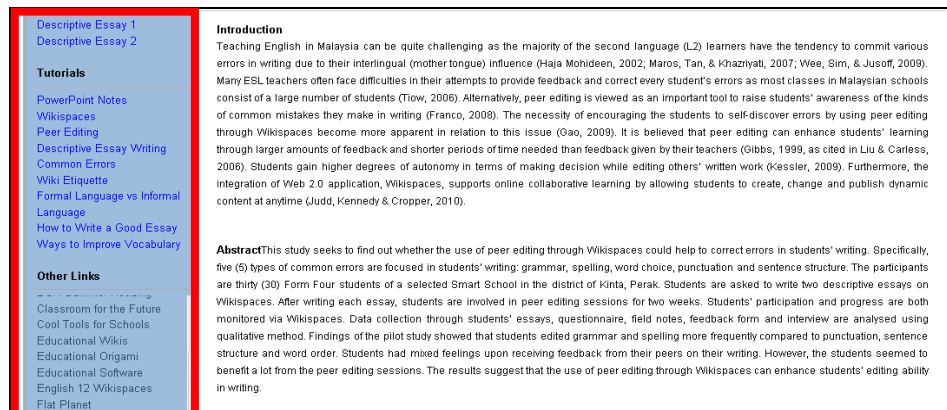


FIGURE 10. Navigation Sidebar

## SOCIAL AFFORDANCES

### PROMOTING INTERACTIONS AND GROUP DYNAMICS IN PEER EDITING SESSIONS

The social affordances of Wikispaces promote a variety of interactions (peer-to-peer and students-teacher interactions) and the dynamics of the activities involved throughout the peer editing sessions (individual, group and whole class task). The individual task took place during the write up of the two descriptive essays. This was followed by peer editing in groups and later expanded to the whole class. Fundamentally, students were involved in the peer interaction throughout the peer editing sessions with an equal sense of group ownership for they created, shared, edited and confirmed knowledge on error correction among themselves via Wikispaces. To illustrate, Student 11 wrote the second descriptive essay on Wikispaces as in Figure 11. During the peer editing sessions within the group of five, Student 12, who was one of the group members read the essay and edited two spelling errors, 'preffered' and 'synonims'. After a while, Student 13 read the essay and discovered another spelling error 'nickname' together with three word choice errors 'its', 'for' and 'is'. However, Student 14 read the same essay and found that a spelling error edited by Student 12 initially was wrong and thus Student 14 edited the word [preffered] to [prefer]. The last group member, Student 15, edited two grammar errors 'others' and 'mean.' Briefly, all the group members had equal access to create, edit and publish their completed tasks on Wikispaces. On the other hand, the students-teacher interaction took place when the teacher provided feedback to the students from time to time to ensure that they remain on the right track.

I think that many of us have the same favourite day with me. And of course, it is Saturday! There were many speciality on this day. I do not know what people preffered [preffered] [prefer], but for me, Saturday is the most wonderful day that have ever been created. Synonims [Synonyms] with its 'nickname' [nickname], weekend, which its [is] paired with Sunday is [is] the last two days of the weeks. I do not know for [about] the others [other] country, but in Malaysia, weekend mean [means] holiday and free from work-to-do!

FIGURE 11. Example of Group Ownership

### PROVIDING A SAFE AND COMFORTABLE ENVIRONMENT

Wikispaces is considered as a safe and comfortable environment for social interaction. The privacy and permissions of the Wikispaces can be set to either public, protected or private label by the teacher who plays the role of an administrator. Most importantly, members are added into the Wikispaces by invitation only and outsiders are not allowed to access the network. Thus, this allows the teacher as moderator to better manage the students' peer editing activities for more purposeful teaching and learning context. By having such a secured online learning environment, the teacher can pay attention to the students' attendance, group leader's responsibilities as well as the students' participation patterns in the peer editing activities throughout the study.

### ENHANCING ASYNCHRONOUS COMMUNICATION AMONG STUDENTS

Wikispaces also enables asynchronous communication, for example, discussion forums (interactive space) and personal messaging. Discussion forums as seen in Figure 12 allow students to discuss common issues, exchange ideas and share information in text-based conversation. Two related issues were discussed in this study: writing problems faced by the students and suggestions to overcome those problems. This means that students do not have to log in at the same time, yet they can read and respond to each other's messages at their own convenience.

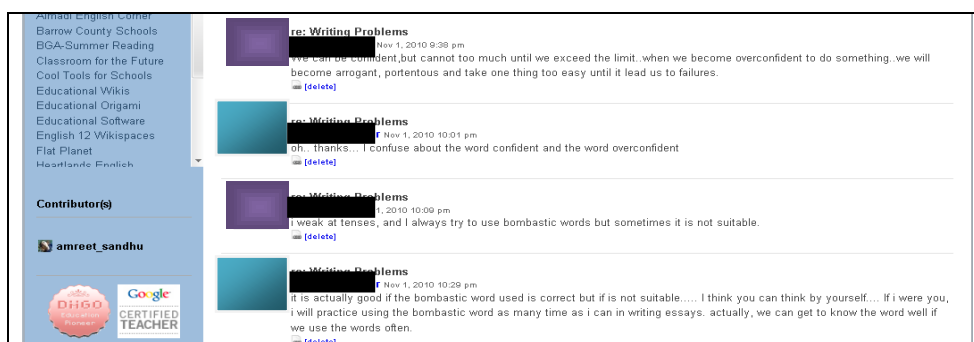


FIGURE 12. Discussion Forum

As a result, the majority of the students engaged themselves actively in the forums, primarily, for the reason to exchange ideas, experiences and future intentions without any feelings of shyness, discrimination and fear. Likewise, this statement has been supported by similar findings from the questionnaire. The results of the questionnaire showed that peer editing through Wikispaces helps the students to overcome fear ( $mean = 3.23$ ) and it involves a relaxing way of learning ( $mean = 3.58$ ). In addition, the majority of the students strongly agreed that the peer editing through Wikispaces is a useful activity ( $mean = 3.35$ ) where it trains the students to become good writers ( $mean = 3.31$ ) by helping them to increase their motivation ( $mean = 3.08$ ) and confidence ( $mean = 3.31$ ) level in writing. Apart from the reason why students engaged themselves actively in the forums, the field notes further display a related theme that derived by using thematic analysis. Under the theme of students' involvement throughout the peer editing sessions, the results show that the students freely posed questions to each other in order to request for further clarifications and explanations on the discussed topics. They also conveniently posted responses online by putting forth own opinions, giving explanations, and supporting the issues at their own pace. This can be seen in Figure 13. Student 2 and Student 3 asked for clarifications about the most difficult language aspect and how to choose the correct words.



...S1 began the forum by sharing his response "I'm not good in grammar, vocabulary and spelling...Just in three minutes...S2 asked S1 for clarification about "Which is the most difficult for you?...S1 replied quickly with a short answer "Grammar". Suddenly, S3 appeared in the forum with a response to looking for help "I got problem choosing the correct words. Is there difference between 'embrased' and 'embraced'?...S2 explained in his own words "Embrace is the correct word. Embrased is wrong spelling. To me, I think 'embraced' means...Well, when coming towards the end of the peer editing session...S4 managed to throw a question which sounded like the following "I always write my essay informally, I once got labelled as 'matured' by my teacher. Is it ok?" While, S5 shared his writing problem and mentioned the possible suggestion on how he could overcome the problem "For me,

FIGURE 13. Day 5 Reflection Note

Norherani Moning and Grace Chang (2009) reported similar findings. Their use of Wikispaces as a channel of discussion for scaffolding academic writing has successfully enhanced the students' communication on various content areas in Social Studies. Discussion forums specifically are selected as an avenue for students to discuss and express their ideas and thoughts on the subject. The students use this platform to give their opinions, chat and conduct a discussion simultaneously. They are indeed very receptive in using the Wikispaces as a 'roundtable' for discussion. Hence, the study concludes that Wikispaces is a valuable platform that provides an interactive space such as discussion forum for academic discussion to continue beyond the classroom.

However, there are two differences found between Norherani Moning and Grace Chong (2009) and the present study. Firstly, the former study did not show any involvement of the lecturer in the discussion whereas there was some teacher's involvement in the present study. The teacher provided feedback especially towards the end of the discussion. Secondly, in the prior study, the lecturer did not lock the conversation and sum up particular issues before moving on to the next issues, while in the present study, these techniques were included to ensure proper closure for each discussion. That was why the students in the former study suggested that the lecturer be involved as it would help them to improve their writing and be more aware of what they wrote in their posts. In addition, it would also allow the lecturer to monitor the students' posts and help the students to have a better understanding of what they have learned in the course.

## TECHNOLOGICAL AFFORDANCES

### SIMPLICITY AND FLEXIBILITY NATURE OF WIKISPACES

Essentially, the advantages of Wikispaces rely on its simplicity and flexibility nature. Wikispaces is a free, user-friendly and easily accessible web-based tool provided via the Internet. It does not need any complicated installation procedures. Students only require signing up using a valid username and password - a quick and relatively effortless procedure.

### ENCOURAGING USERS TO BACKUP AND SECURE FILES

Further, Wikispaces secures backup in the form of Web Folders (WebDAV) as well as supports flexible learning environments with the presence of two features, page reverting as shown in Figure14 and autosave.

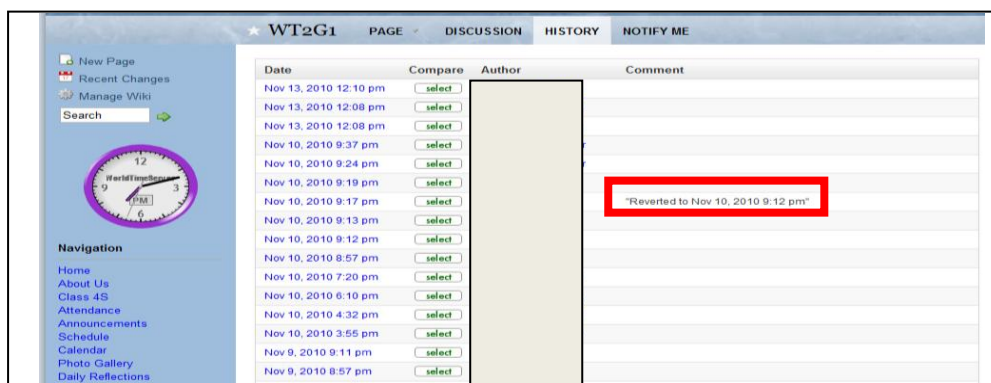


FIGURE 14. Reversion Sign on the History Logs

If some of the students did not agree with the feedback or comments given by their peers, he or she could revert to the previous version by going through the history logs as in Figure 15. For example, during the peer editing sessions within group members for descriptive essay 2, five students (S1-S5) of Group 1 took turn to read and peer edited each other's essays.

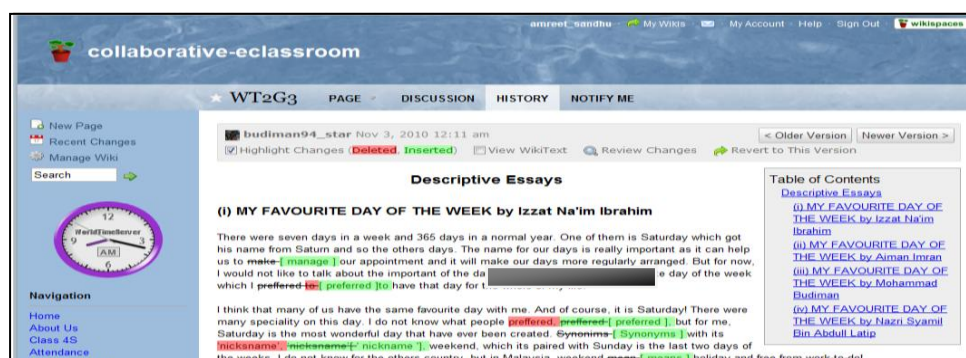


FIGURE 15. An Overview of a History Log

However, some of the correctly edited errors were found to be accidentally deleted by Student 5 as shown in Figure 16a. This includes prepositions ('of' and 'in'), word choice ('live'), grammar ('frustrated') and sentence structure ('is the day for the Starians to go out for outing'). Following these changes, Student 2 who wrote the essay realised some missing error corrections. Errors which were correctly edited at the initial stage no longer appeared in the essay. Thus, as shown in Figure 16b, Student 2 took the next course of action to revert the newer version to the older one. This means that the technological affordance of Wikispaces augments reversion without losing the previous versions.

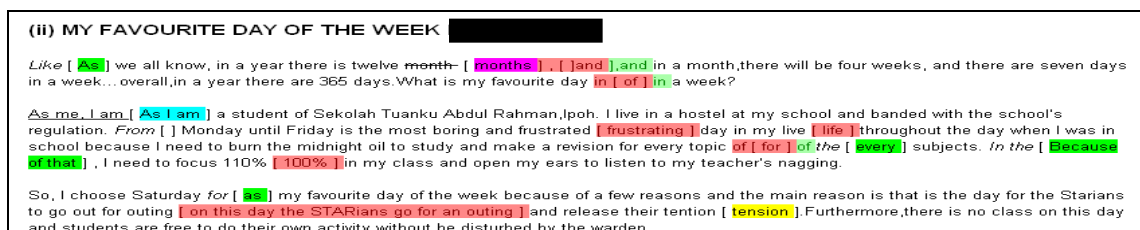


FIGURE 16a. Newer Version (Deleted Some of the Error Corrections)

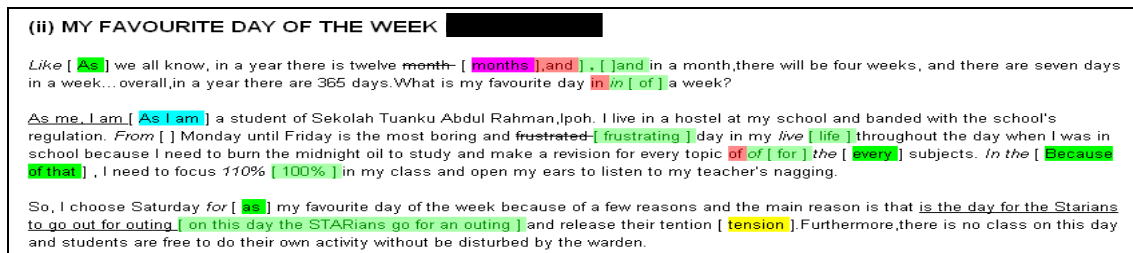


FIGURE 16b. Older Version

On the other hand, the autosave function as depicted in Figure 17 saves students' drafts as they edit and they can always refer to the work in progress. Thus, students do not have to worry if they did not click on the 'Save' button before logging out of the Wikispaces. Additionally, this autosave feature avoids the problem of clashing and overlapping during the peer editing process. The errors edited by the students were automatically saved on the Wikispaces.

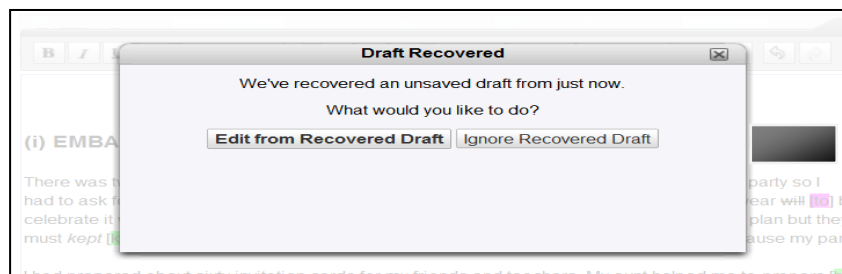


FIGURE 17. Autosave

## CONCLUSION AND FUTURE CONSIDERATIONS

Effective and innovative ICT integration into teaching and learning process is considered as an important task for the teachers. Simply choosing technology will not cause them to integrate naturally (Wang & Woo, 2007). They must make sure that the selected ICT tool should match its affordances with the required tasks. In this study, the potentials of Wikispaces were highlighted and described extensively based on the three affordances (pedagogical, social and technological) of ICT affordance model. The findings of using Wikispaces as a peer editing platform together with its affordances confirmed that Wikispaces facilitates collaborative learning and knowledge management; in terms of knowledge building and knowledge sharing aspects. However, several considerations relating to pedagogical, social and technological affordances need to be taken into account if Wikispaces is to be used as a platform for teaching and learning.

Firstly, in designing the layout of Wikispaces, the administrator or the teacher needs to make plan ahead in terms of choosing the appropriate pedagogical approach, deciding on the content of the subject, and organising the types of activities that best suit the students' interests and needs. One should keep in mind that Wikispaces is just a plain dashboard. The users of Wikispaces, (teacher and students) are the ones who would edit the wiki pages in order to create, share, confirm and publish their work. In addition, for teachers who are planning to carry out group work activities via Wikispaces, it is recommended to have a small number of members (3-4 students) in a group. This is because the small group is considered more personal for small group provides opportunities for interaction between teacher and students, and among students (Brindley, Walti & Blaschke, 2009). In addition, such form of interaction can foster active learning and help the students develop a sense of responsibility



for their own learning. It is advisable for the teachers to ‘tailor make’ their own activities based on the time constraints, students’ English proficiency level and most importantly, the objectives of the particular activity.

Secondly, all activities conducted via Wikispaces including peer editing are actually meant to be carried out at the students’ own pace outside of the classroom. Once the students have posted their essays on Wikispaces, they can then proceed with peer editing activities by using the computers available in the school computer lab. All the students will have been provided with a peer editing checklist that serves as a guide. Thus, students can login to Wikispaces at their free time including weekends. The teacher will monitor the students’ progress online, daily. If the students have any problems, they can send a message to the teacher via Wikispaces. Thirdly, there is a need for the teacher to block activities after a certain period of time. This would help train the students to complete their tasks on time and avoid them from procrastinating.

Fourthly, the new comments feature of Wikispaces would be an appropriate choice for the teacher to give feedback on the students’ essays rather than manually creating an enclosed space (a box). This is because the latest comments feature allows the users to apply notes, questions, and observations to any passage on a wiki page. It is more like placing a post-it note onto the wiki page. However, since the comments are linked to a specific part of the page, thus they would certainly show the users which exact words or phrases they are referring to (unlike emails or discussion board posts).

Next, integrating synchronous communication into teaching and learning via Wikispaces is as equally important as asynchronous communication. Face-to-face communication provides quick response and a two-way exchange of information (Hrastinski, 2008). Therefore, teachers should consider using such mode of communication via Wikispaces in facilitating person-to-person interaction regardless of location. Wikispaces provides text chats such as Meebo, Gabbly, Instant Messaging (IM), and Chatbox. Both teachers and students can simply embed the application to wiki pages, create a user account and start communicating with each other. Besides text chats, video conferencing service is also available through Skype in Wikispaces.

Finally, Wikispaces can be used as a collaborative learning and knowledge management platform, not only for peer editing purposes but also for other use of wikis such as e-portfolios, digital storytelling, school/institution administration pages, reflections, e-books, online library, team projects, and professional development.

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