

The effectiveness of project-based learning utilizing Web 2.0 tools in EFL

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Researchers in the past, such as Jeon-Ellis, Debski, and Wigglesworth (2005), have successfully utilized CALL and Project-Based Learning in language education to motivate students through collaboration and sociocultural methodologies, yet little EFL research has been written about the incorporation of Project-Based Learning and Web 2.0 tools. This action research was conducted over an 8-week period to address whether or not the combination of Project-Based Learning and Web 2.0 technologies is an effective methodology for promoting collaboration and motivation in a Pai Chai University EFL Tourism course in South Korea. The results were inconclusive, as the sampling, data collection tools and participants were inadequate, but the students' feelings towards the methodology, Web 2.0 tools and the Social Network System Ning showed promise for future application.

Introduction

The practice of EFL education in South Korean universities is very similar to the majority of Asian contexts, where the fundamental application of L2 is primarily bound to the context of the classroom. Barrs (2012) found that, "living and functioning in a L1 environment while studying English compounds the disconnection between L2 English (p. 11)." This is also true for Korea university students, as there is little chance for social interaction in L2 outside of the classroom. In a typical classroom scenario, students follow along with the lecturer whilst methodically moving through textbooks. They are usually only given time to memorize phrases, listen to conversations, take quizzes and recite pre-fabricated

dialogues. Thus, the students are not provided with ample opportunities to collaborate with peers or groups. This seems to be a reoccurring problem in Asian universities, as Barrs (2012) stated that Japanese students don't usually have sufficient opportunities to interact in L2 (p.10). The Tourism courses at Pai Chai University are no different in this respect, thus a Social Network Service (SNS) called Ning was chosen to extend the classroom and give the students a chance to communicate online and build projects collaboratively.

This action research project was constructed to determine whether or not implementing Project-Based Learning utilizing Web 2.0 tools in a South Korean university, is an effective approach to stimulate collaboration and motivation. Although the entire curriculum could not be altered for this project, Ning was used as a Learning Management System (LMS) allowing the students to use Web 2.0 tools to collaboratively interact and create projects online. This was an exploratory attempt to discover if Web 2.0 applications could motivate students and increase their collaborative abilities, similar to prior research conducted in CALL by Jeon-Ellis, Debski and Wigglesworth (2005). Several scholarly journals were used to articulate the rationale for this action research and to make connections between Project-Based Learning, CALL, Web 2.0 and EFL.

Background

The basis of Project-Based learning was founded on Vygotskian Social Learning and Constructivist ideologies, which advocates that collaboration promotes intellectual growth (Jeon-Ellis, Debski & Wigglesworth, 2005, p. 121). "Project-Based Learning or "PBL" has several goals, for example, the development of a positive attitude, critical judgment, teamwork, independent reasoning and study habits (Petrosino, 2007)." These elements are an essential part of the learning process that takes place in PBL and as Petrosino (2007) pointed out, all of these components combined are beneficial for student learning because they emphasize investigation into the construction and representation of what the students are actually learning. Thus, students are utilizing higher-level cognitive abilities, which enable them to build a community of learners to master the content collaboratively (Petrosino, 2007). With PBL students no longer just walk away from their education, it remains a part of their life-skills.

Through PBL, students learn to cooperate and develop skills that are directly related to their own personal needs, which allow them to work together to solve real world problems that are contextually important (Edutopia, 2008). One of the most important life-skills is teamwork and it has been stated by professionals whose expertise fall in line with PBL that "group-work is a fundamental part of creating projects, so each individual's strengths and learning styles supports the team as a whole (as cited in Moss & Van Duzer, 1999)." Techniques that involve student-based education tend to take away teacher-centered education where "teachers act only as facilitators of knowledge; as students work in small-groups to teach, tutor and become the authors of knowledge (Eng, 2000)."

As can be seen in Figure 1, PBL moves through a collaborative process of planning, engaging, reconstructing, presenting and reflecting. Throughout the project building process, teachers can observe progress, while students are able to iteratively assess each other through peer-review and self-reflection (Moss & Van Duzer, 1999). Competition and small group sizes are necessary in these stages to motivate and increase social interaction through coordination, discussions, and assessments. With the goal-oriented focus of PBL,

114 students are inclined to contend with each other through the process of construction and

in the comparison of their final projects (Petrosino, 2007). Since **PBL** is known to have the ability to motivate and create opportunities for collaboration, it has been applied in many disciplines over the past years. Furthermore, with the advancements in technology, even practitioners of **CALL** have seen the great opportunities for its application in language acquisition.

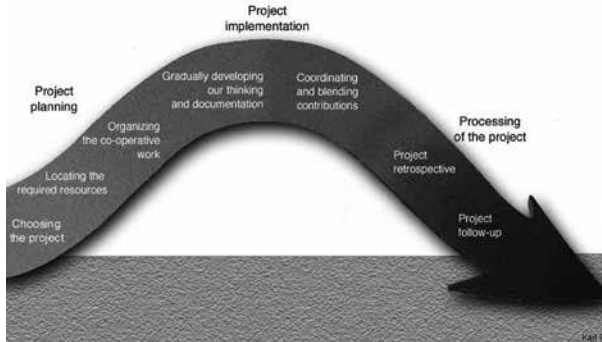


Figure 1. Learning Process for Project-Based Learning (Laferrriere & Gragoire, 2001).

CALL and PrOCALL (Project-Oriented CALL)

The use of technology in the field of language education has been developing rapidly over the past 20 years with many theorists developing new and innovative ways to apply **CALL** to increase motivation. As far back as the late 90s in Telecollaboration in Foreign Language Learning, both Warschauer and Debski (1996) documented the increases in motivation produced by **CALL** and theorized potential uses for technology in and outside of the classroom. Warschauer (1996) found that the inclusion of **CALL** increased the mean score of students' motivation who were using a fully integrated system in the classroom (p. 34). Debski also discovered that Polish students studying English made great advancements in their motivation when asked to create movies, which they would present to the public (see Warschauer, 1996, p. 57). In a more recent study, it was found that students' attitude toward learning language online in a collaborative manner motivates students and allows them to share their ideas (Ushida, 2005). If used correctly, **CALL** can enhance students' motivation and attitudes towards learning (Ushida, 2005, pg. 50), but lack technological skills, achievement and social interactions can often hinder the learning process (as cited in Jeon-Ellis, Debski & Wigglesworth, 2005, pg. 122).

Though technology and **CALL** can be used as tools to motivate students, it is important to give students chances to have social outlets and feel connected through collaborative interactions "because it is important to provide a meaningful context for L2 development (Jeon-Ellis, Debski & Wigglesworth, 2005, p. 122)." The freedom and control over the functional language allows students to create different language, which might not be found in the traditional classroom (Jeon-Ellis, Debski & Wigglesworth, 2005, p. 122). This was also found by Barrs (2012) who conducted action research during the summer break at the University of Kanda in Japan to determine if creating online opportunities would promote

collaboration in L2 (p. 10). "He discovered that by creating an environment that was unrestricted by time and place, a socio-cultural environment was formed which was beneficial for L2 collaboration (Barrs, 2012)." Motivation and collaboration are both key concepts for language learning (as cited in Ushida, 2005, p. 50) and researchers like Jeon-Ellis, Debski and Wigglesworth (2005) have taken this one step further by creating a framework encompassing **CALL**, **PBL** and language acquisition.

Project-Oriented **CALL** or "**PrOCALL**", was designed to use modern technologies with project-oriented learning tasks to trigger collaboration and promote motivation in and outside of the class (Jeon-Ellis, Debski & Wigglesworth, 2005, p. 121)." **PrOCALL** has been successfully used in the past to promote language negotiation and goal-based situations that facilitated cooperative language learning (Jeon-Ellis, Debski & Wigglesworth, 2005, p. 122). The results of these studies have shown that **PrOCALL**: "creates new chances for learning different from the traditional classroom, which allowed students to have meaningful interactions and relationships that stemmed from outside of the classroom and increased their willingness to collaborate (Jeon-Ellis, Debski & Wigglesworth, 2005, p. 122). Also, Jeon-Ellis, Debski and Wigglesworth (2005), reported that the "research showed profound impact on generating learning opportunities," which would not have been possible without the use of technological tools (p. 141). With the amount of digital devices and social software applications increasing, it is becoming more possible to collaboratively involve students in language learning outside of the classroom (Barrs, 2012, p. 12). Thus, many teachers are turning to the Internet in hopes of developing a more student-centered atmosphere through the use of the Web 2.0 technologies.

Web 2.0 and PBL

At its inception, Web 1.0 was as a filing system and was designed by the few who had the ability to alter it, however it has evolved immensely over the past few decades and now offers more versatility for dynamic online applications. This "new" World Wide Web is now known as Web 2.0. The online applications being produced for this standard are creating amazing opportunities for educational institutions.

Web 2.0 encompasses a variety of different meanings that include an increased emphasis on user generated content, content sharing and collaborative effort, together with the use of various kinds of social software, new ways of interacting with web-based applications, and the use of the web as a platform for generating, re-purposing and consuming content (Albion, 2008).

During the days of Web 1.0, students were using the Internet to passively take in information. Nowadays, with Web 2.0 tools, educators and students alike find the Internet as a participative medium in which users can collaborate. "Through the use of social networks, media recording applications, wikis, podcast and blogs, users can now interact with the way content is being presented and add to the organization of such information rather than just observing it (Albion, 2008)." These new technological advances have opened up many doors for not only educators and students, but also the educational field as a whole. Thanks to the options and versatility of Web 2.0, there are a variety of learning theories that can be more efficiently exhibited in the digital realm.

In recent years an enormous amount of Web 2.0 applications have been developed which
116 can be adapted to the modern day **EFL** classroom. Web 2.0 allows students to reconstruct

and present information with many different online applications. Figure 1 shows that from a practical standpoint, it can be assumed that **PBL**, using technology, requires students to organize, implement and then process the results in a collaborative manner. **EFL** programs, such as, **ITESM** (Monterrey Superior Education Technological Institute) have adapted their curriculum to use **PBL** and Web 2.0 tools. In their study, it was found that student acceptance was “particularly high and self-transformation of knowledge was achieved (Alonso, Alcalá & Brugos, 2007).” Online applications offer many other qualities, which were found by the **ITESM** research and of those included, “increase of quality of works, increased motivation, a total of no cheating, more students in classrooms, and teaching-learning skills (Alonso, Alcalá & Brugos, 2007).” An added benefit of this methodology is that teachers can take the position of a facilitator, because it “creates an atmosphere that enhances independent learning skills such as autonomy (Alonso, Alcalá & Brugos, 2007).” In such cases, students can decide on which part of the subject they would like to focus on and search for their own answers using **PBL** and Web 2.0 tools. Finally they have the opportunity to demonstrate or share their own mastery of materials. With the research that has been compiled about using Web 2.0 tools and **PBL**, it is easy to see that this combination facilitates an environment that essentially becomes student driven along with many other benefits that could enhance any **EFL** program.

Web 2.0, PBL and the future of EFL

The development of Web 2.0 over the last few years has opened up a number of new interactive, collaborative applications that can be used in the field of **EFL**. The Internet can also be a useful tool for collaboration among **EFL** learners locally, nationally or globally. Whereas the original Web 1.0 served up fixed, static pages of information meant for observation by viewers only, “Web 2.0 applications allowed users to interact with, and contribute to the information being provided (Albion, 2006).” While Web 1.0 offered English as a topic of discussion, Web 2.0 applications allow students to have a platform from which they can learn and adapt the information for their own personal use. As Moss & Van Duzer (1999) stated, “With the inclusion of Project-Based learning, real-life situations and the materials studied in **EFL** courses can be connected.” The remarkable milestones that have been achieved with the combination of Web 2.0 and **PBL** have made it possible for **EFL** learners to not only study alone, but has opened a line of communication where students can share their experience and work collaboratively in real-time. Students can communicate either on a one-to-one or a many-to-many basis any time from school, home or work. Therefore, “it is not surprising that many **EFL** teachers have embraced Internet-Assisted Language Teaching and have developed new ways of using the Internet with their students (Hee-Jae Shin; Jeong-Bae Son 2007).” Web 2.0 tools lead to collaboration; this collaboration opens the door for **PBL**, which in turn motivates **EFL** students and drives social interactions inside and outside of the classroom.

For language learning to flourish, it is imperative to have social interactions that encourage students to create authentic works and organize information in a way that they collaboratively understand (Jeon-Ellis, Debski & Wigglesworth, 2005). By allowing students to create group projects, reflect on coursework and conduct self/peer assessments, a community of learners can be created who are not only responsible for their own learning but that of their peers. This action research looks at whether or not using Web 2.0 tools and

PBL in a blended **EFL** environment increases students' collaboration and motivation. To guide this action research the following questions were constructed:

- ✧ Does Project-Based Learning increase students' collaborative ability?
- ✧ Are students motivated to participate in a blended-learning course that offers them an opportunity to make projects?

Participants

Twenty-two Korean students (13 females and 9 males) from an undergraduate Tourism course at PaiChai University in South Korea participated in this action research. The class met once a week for three hours at PaiChai University in Deajoen. All students were assessed by PaiChai University's initial test and were considered to be lower intermediate. No sampling or control groups were created at the time of this action research due to the lack of participants in the study.

The Tourism course utilized a blended-learning design, in which the first researcher hired by PaiChai University as an English instructor, met with the class for lectures and face-to-face interaction. The second researcher worked strictly as an on-line instructor and gave feedback to students using the **LMS** system. At the time of this project, the researchers were graduate students enrolled in the Research in Information and Learning Technology course studying in the Masters of Arts in Information and Learning Technologies – eLearning at the University of Colorado Denver.

Materials

During the action research, a number of different Web 2.0 tools were incorporated to enhance the students' collaboration and motivation. Unfortunately, Web 2.0 tools usually only offer one use and are not easily combined, so it was essential to use a **SNS** (Social Network System) which was robust enough to allow for the extensibility of multiple Web 2.0 applications. To rectify this problem, a **LMS** (Learning Management System) was constructed using Ning to embed all of the resources necessary to execute **PBL**.

Ning. At the time of this research, Ning was free for all users, but now has moved to a paid service. Ning is a social network site that allows users to construct their own private **SNS**. This system creates a **SNS** similar to Facebook and allows the administrator to customize the look, feel and content as he/she sees fit. Figure 1 is an illustration of the Ning site that served as the **LMS** during the action research. This **LMS** was chosen because of its capacity to use threaded discussions, create blogs and embed Web 2.0 content. The Ning **LMS** was where a majority of the student's surveys were posted and it provided a great deal of flexibility for planning and implementing the **PBL** assignments. Also, this platform allowed students to engage in a wide variety of activities, such as posting pictures, uploading audio files and videos, planning events, chatting, and emailing. <www.ning.com>

VoiceThread. VoiceThread is a partially free Web 2.0 tool used specifically for creating online presentations. Projects can be created and edited individually or collaboratively. Each user can set their space to private or public allowing other users to comment directly on the presentation using text or audio. Each user can chose their own avatar and name, so other users can see who changed different portions of the presentation or made a comment.

Figure 2. PaiChi LMS Homepage (Site overview: <http://www.youtube.com/watch?v=rsKxNKCZP3I>)

This Web 2.0 application was essential for the action research, as it was used as the basis of the PBL mid-term presentation. Each user was supplied with a VoiceThread space where they could upload pictures, videos, and different kinds of media to create a linear presentation. The presentations were constructed collaboratively and required the students to leave feedback for each other throughout the development stages. <www.voicethread.com>

Jing. Jing is a free Web 2.0 tool that allows users to record up to five-minute-long, narrated screen shares. These screen shares can be emailed, embedded into any website or viewed directly from the server's native website. This tool was essential for giving students step-by-step instructions concerning technical issues. It also provided a lot of student support since the instructors could record themselves talking by use of webcam and post it onto the site. <<http://www.techsmith.com/jing/>>

Scribd. Scribd is a free Web 2.0 tool that allows users to upload documents to a server, which then encodes the documents with hypertext-markup-language (HTML) that can be embedded into a web site. The course notes were converted into Scribd documents. Using Scribd made the notes globally accessible and easy to read or print directly from the course SNS. <www.scribd.com>

Procedure

The research was conducted over an eight-week period from the beginning of the spring semester in May to the midterm point in July. The online course work was presented in a way that allowed the students ample time to adapt to the online environment. Additionally, because the course was taught in a blended manner, students had the opportunity to work on assignments and ask questions in class. Throughout the semester students were being exposed to Web 2.0 tools that they would be using to collaboratively present their final midterm projects.

The first step in this research process was to get students registered on the Ning site. Students were initially emailed a step-by-step screen share tutorial from Jing to assist them in registering. After all students were registered, they were able to participate in the initial survey, which asked the students to rank their own perceived abilities and attributes.

Each week, the instructors posted a new discussion topic and a help forum where students were able to elaborate on the lecture information and interact with each other. Videos, podcasts and images were utilized to encourage motivation and interaction online. Students also had the opportunity to make blog posts for reflection, and upload other types of files to establish active learning online.

The midterm project was a free-choice topic that related to the field of Travel and Tourism, and as such, students had full reign over the content that was added to their project. This project was conducted in a collaborative manner to promote social interactions. The students used VoiceThread to create presentations using a variety of media. Students were then asked to complete a Peer/Self reviewed scoring rubric while viewing the midterm project presentations during class (Appendix A). After the midterm projects were completed and graded, students were given a post **PBL** midterm survey.

Results

Data was collect for this action research project using surveys (Figs. 3-4 and Tables 2-3) and peer/self reviews (Figs. 4-5). After the completion of the mid-term project, the researchers (Table 3) also took surveys to confirm or disconfirm the students' self-evaluations. Since the participants for this survey only accounted for N=22, the data did not have much statistical significance, so no quantitative analysis was undertaken. In the charts and graphs below: data change, trend analyses and high averages were analyzed instead. Focus was placed on the two main areas, each synchronized to the action research questions in Figure 3.

Student collaborative surveys

Surveys were created using the Web 2.0 tool, Survey Monkey, and were distributed to students online through the Ning **LMS**. These surveys were completed at the beginning of the semester (Figure 3), before students began working together online. A follow up survey (Figure 4) was given after students completed their **PBL** midterm projects. In both surveys students rated their perceived collaborative ability using a scale of one to five (Poor – Great).

Peer/self reviews

Students evaluated their peers and themselves using a rubric (Appendix A) that measured the use of media, student collaboration, and overall content on a scale (1-10). The tool that was used by students to create their projects was VoiceThread and the students were required to work in groups to create the midterm project, which were then collaboratively presented to the class. They were assessed by their peers during the presentation (Table 1) and then evaluated themselves using Survey Monkey afterwards (Figure 6).

How would you rate yourself when working in a group?			Response Percent	Response Count
Poor	<input type="checkbox"/>		0.0%	0
Fair	<input type="checkbox"/>		0.0%	0
Average	<input checked="" type="checkbox"/>		63.2%	12
Good	<input type="checkbox"/>		31.6%	6
Great	<input type="checkbox"/>		5.3%	1
<i>answered question</i>				19

Figure 3. Results of the students’ perceived collaborative ability; Pre-Participatory Survey

How would you rate yourself after working in a group for your mid-term project?			Response Percent	Response Count
Poor	<input type="checkbox"/>		5.9%	1
Fair	<input type="checkbox"/>		0.0%	0
Average	<input checked="" type="checkbox"/>		35.3%	6
Good	<input type="checkbox"/>		52.9%	9
Great	<input type="checkbox"/>		5.9%	1
<i>answered question</i>				17

Figure 4. Results of the students’ perceived collaborative ability; Post-PBL midterm

Table 1: Results of the students’ averaged peer/self collaboration scores after midterm presentation.

Score x/10	3	4	5	6	7	8	9	10
Group1	0% (0)	0% (0)	15% (3)	15% (3)	10% (2)	20% (4)	15% (3)	25% (5)
Group2	5% (1)	0% (0)	10% (2)	15% (3)	35% (7)	25% (5)	5% (1)	5% (1)
Group3	0% (0)	0% (0)	30% (6)	25% (5)	0% (0)	20% (4)	20% (4)	5% (1)
Group4	0% (0)	5% (1)	0% (0)	40% (8)	15% (3)	25% (5)	10% (2)	5% (1)
Group5	0% (0)	0% (0)	0% (0)	15% (3)	10% (2)	50% (10)	25% (5)	0% (0)
Group6	0% (0)	0% (0)	5% (1)	5% (1)	0% (0)	30% (6)	30% (6)	30% (6)
Group7	0% (0)	15% (3)	10% (2)	15% (3)	25% (5)	25% (5)	10% (2)	0% (0)
Group8	0% (0)	0% (0)	5% (1)	20% (4)	25% (5)	35% (7)	10% (2)	5% (1)
Average	.6% (1)	2.5% (4)	9.4% (15)	18.7% (30)	15% (24)	28.8% (46)	15.6% (25)	9.4% (15)

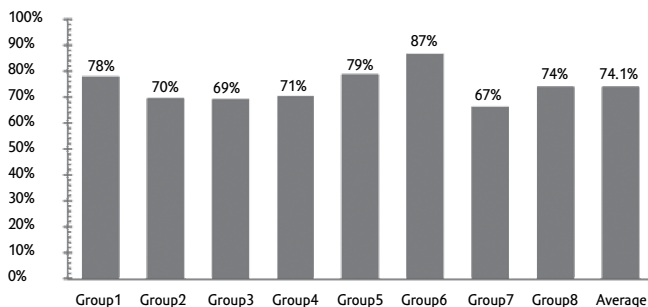


Figure 5. Results of the students' averaged peer/self collaboration scores after midterm presentation.

Student attribute surveys

Surveys were created using the Web 2.0 tool, Survey Monkey, and were distributed to students online through the Ning LMS. These surveys were completed at the beginning of the semester (Table 2), before students began working together online. A follow up survey was given after students completed their PBL midterm projects (Table 3). In both surveys students rated their perceived attributes using a scale of one to five (Strongest – Weakest).

Table 2: Results of the students' perceived attributes (Pre-participatory survey)

How would you rate yourself for the following student attributes? (1 = strongest, 5 = weakest)						Rating average	Response count
1	2	3	4	5			
Social	36.8% (7)	26.3% (5)	36.8% (7)	0.0% (0)	0.0% (0)	1.00	19
Motivated	21.1% (4)	52.6% (10)	21.1% (4)	5.3% (1)	0.0% (0)	1.00	19

Table 3: Results of the students' perceived attributes (Post-PBL midterm survey)

After completing your midterm project, how would you rate yourself for the following student attributes? (1 = strongest, 5 = weakest)						Rating average	Response count
1	2	3	4	5			
Social	5.9% (1)	52.9% (9)	35.3% (6)	0.0% (0)	5.9% (1)	1.00	17
Motivated	17.6% (3)	35.3% (6)	17.6% (3)	23.5% (4)	5.9% (1)	1.00	17

Teacher surveys

To assist in triangulating data, the researchers completed student evaluations using surveys (Table 4) produced with Survey Monkey, which were similar to the students' surveys. This

provided the instructors with an opportunity to rank the students' attributes using the same one to five rating scale (Very Strong – Very Weak).

Table 4: Results of the teachers' surveys listing the students' attributes (Post-PBL midterm survey)

How would you rank your (Name)'s abilities? (1 = strongest, 5 = weakest)								Rating	Response
	1	2	3	4	5	N/A	average	count	
Social	13.6% (6)	27.3% (12)	29.5% (13)	20.5% (9)	9.1% (4)	0.0% (0)	1.00	44	
Motivated	4.5% (2)	22.7% (10)	27.3% (12)	9.1% (4)	0.0% (0)	36.4% (16)	1.00	44	

Discussion

Direct answers to research questions

Table 5: Triangulation of data

Research question	Data source#1	Data source#2	Data source#3
1) Does PBL increase students' collaborative ability?	Student survey (Figure 3–4)	Teacher survey (Table 4)	Peer/self reviews (Table 1, Figure 5)
2) Are students motivated to participate in a blended-learning course that offers them an opportunity to make projects?	Student survey (Table 2–3)	Teacher survey (Table 4)	—

Evidence of increased collaboration. To determine if students' ability to work collaboratively in groups increased, two surveys were conducted (Figures 3–4), compared and referenced with the teachers' survey in Table 4 to confirm the students' self-evaluation. The students' Peer/Self Reviews (Table 1) were also looked at, along with the midterm collaboration grades for each group (Figure 5) to find high averages. This can be observed in Table 5 above.

In the original survey (Figure 3), before students embarked on PBL, 12 students stated their ability to work within a group as Good (2) and only 1 reported his/her skill as Great (1). Figure 4 displays that an additional 3 students or 21.3% stated that their skill had improved to Great (1). Furthermore, only about 36.9% of students rated their abilities as Good (2) or Great (1) in the Pre-Participatory Survey (Figure 3), but this increased by 23% in the Post-PBL Midterm Survey (Figure 4) to a total of 58.8%. The results from the teachers' evaluation in Table 4 seem to support this data. Also, The researchers felt 56.8% of the students displayed group work skills equal to Very Strong – Strong (1–2). The only negative change that can be seen in Figure 4 is that 1 student rated their group working skill as Poor (5) in the Post-PBL Midterm Survey.

In Table 1, the scores awarded by Peer/Self evaluations for the midterm project are based on x/10. 1 and 2 were omitted since the results ended in 0%. The Peer/Self evaluations display a high level of collaboration in the construction and presentation of the midterm projects. 80% or 8/10 was assigned by 28.8% of the evaluators, which was the highest average

and only 12.5% of students evaluated group collaboration below 60% or 6/10. This means 87.5% felt the groups' collaboration were above average (7-10) or 70-100%. Table 1 showed that students reflected positively on collaboration and each group member seemed to successfully maintain their role during the development process and presentation. The results from Table 1 translated into an average grade of 74.1% for the midterm collaboration grade in Figure 5. All groups maintained an above standard grade for their final collaboration grade with the highest grade being 87% and the lowest of 67%.

Evidence of increased motivation. In order to gauge motivation, two different student surveys were compared (Table 2-3) and cross-referenced with evaluation of the teachers (Table 4). An illustration of this triangulation can be seen in Table 5 above. In Table 2 it can be seen that during the Pre-Participatory Survey only 1 student felt motivation was his/her Strongest (1) attribute. In the Post-PBL Midterm Survey in Table 3 it can see that 3 students stated motivation was their Strongest (1). The amount of students who stated Strong (2) only changed slightly and unfortunately some negative data changes in all areas can be seen; Average - Weakest (3-5) in the Post-PBL Midterm Survey (Table 3). It seems 2 students who felt their motivation was Average (3) in the Pre-Participatory Survey changed to Weak (4) in the Post-PBL Midterm Survey (Table 3), which was the cause of the lower Average (3) rating in the self-assessment.

In the data in Table 4 from the teachers' evaluation, 16 of the students' motivation was not directly observable since one of the teachers was not present in the classroom at the time of the study. However, the on-site instructor felt that 12 of the students' motivational attributes were (1-2) Strong-Very Strong, suggesting a higher level than the students suggested in Table 2 and Table 3, and only rated 4 students as being (4) Weak.

Limitations

While there were many positive impacts in this action research project, it would not be fair to say that there were no negative circumstances. Since more data needed to be collected than had originally planned, some of the class time had to be used to collect data. In these cases not all students were present for the self-assessment surveys, so the data may have been affected by slight inconsistency. Also, one of the researchers was working remotely and was not able to assess all of the students' attributes in Table 4, which added to the inconclusive findings in the data. Furthermore, the samples were taken from $n=19$, $n=17$, $n=20$ and $n=22$, so data was not quantitatively significant for statistical analysis because of the lack of participants and inconsistencies in data collection. In future research studies, developing more comprehensive surveys and data collection instruments will be strongly consider beforehand to ensure quantitative validity.

This study was also lacking qualitative research to unveil more specific issues, which were happening throughout the research process. Upon the creation of the data collection tools, it was not clear to the researchers whether the data would be useful in the study. Also, the online responses created by the students were lost when the Ning system became a paid version. This careless oversight caused great damage to the potential soundness of the findings. Perhaps more attention needed to be paid to this portion of the study to further explore the students' attitudes towards the learning system over a longer period of time.

One more aspect that should be strongly considered is the fact that the students were 124 given the PBL assignment as a midterm project. As such, a large number of points were

assigned to each project, thus greatly affecting the student grades. While **PBL** was part of what motivated the students in this study, it is also likely that students were also motivated by the large amount of points assigned to the midterm **PBL** assignment. A more structured study involving test groups will be used in future studies to resolve this issue.

Conclusion

Overall the students collaborated well during this action research project. Evidence of collaboration can be found in their self-assessments in Figures 3–4 and teacher’s assessments in Table 4. Students responded favorably to working in groups to produce presentations and the teachers were able to observe the increases in the learners’ collaborative abilities. Moss and Van Duzer (1999) also found facts similar and stated that, “by giving students an opportunity to search for answers to their own questions and allowing them interact within groups demanded them to collaborate.” The data from this action research study showed that students felt their overall collaborative skills increased and that **PBL** played a large part (Figure 3–4), similar to the research done by Alonso, Alcalá and Brugos (2007). The findings also correlate to the research done by Moss and Van Duzer (1999), who advocated that **PBL** is an effective method for teaching **TEFL** and Jeon-Ellis, Debski and Wigglesworth (2005), who stated that, “technology plays an important factor in shaping the collaborative relationships.”(p. 141) The students, who participated in this study, showed a great deal of interest in the technological elements of the study and demonstrated this by successfully completing a collaborative presentation collaborative in VoiceThread (Figure 6) and using Ning to display their work.

It appears that Korean college students studying **EFL**, in a blended-learning course setting, do make improvements in motivation when asked to do **PBL** tasks online. Additionally, because students were given the choice of what their **PBL** topic was, they were more enthusiastic in completing it and therefore, more motivated to do well. They also appeared to be more motivated as was stated in the follow up survey (Table 3). Using Web 2.0 tools to create presentations online for use in **PBL** is a relatively understudied topic. However, the combination of using Web 2.0 tools in **PBL** certainly shows promise. Since Web 2.0 applications lend themselves nicely to producing projects and motivating students, then language acquisition through **PBL** with the use of Web 2.0 seems to be the most logical combination. Light from this research has shown that as more Web 2.0 applications are produced each year, it is important to stay abreast of how to integrate them into the **EFL** classroom. More empirical research should be conducted in this area in order to create a more uniform blended-learning approach for **EFL** courses using **PBL** and Web 2.0 tools.

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Appendix A

Midterm scoring rubric

Multimedia Project Scoring Rubric: Scoring Guidelines

Score levels	Multimedia <i>The integration of media objects such as text, graphics, video, animation, and sound to represent and convey information. Videotapes which include sound and images fit this definition.</i>	Collaboration <i>Working together jointly to accomplish a common intellectual purpose in a manner superior to what might have been accomplished working alone.</i>	Content <i>The topics, ideas, concepts, knowledge, and opinions that constitute the substance of the presentation.</i>
10-9	Students have used multimedia in creative and effective ways that exploit the particular strengths of the chosen format. All elements make a contribution. There are few technical problems, and none of a serious nature.	Students were a very effective team. Division of responsibilities capitalized on the strengths of each team member. The final product was shaped by all members and represents something that would not have been possible to accomplish working alone.	Meets all criteria of the previous level and one or more of the following; reflects broad research and application of critical thinking skills; shows notable insight or understanding of the topic; compels the audience's attention.
8-7	Presentation blends 3 or more multimedia elements in a balanced, attractive, easy-to-follow format. Elements include original student work.	Students worked together as a team on all aspects of the project. There was an effort to assign roles based on the skills/ talents of individual members. All members strove to fulfill their responsibilities.	The project has a clear goal related to a significant topic or issue. Information included has been compiled from several relevant sources. The project is useful to an audience beyond the students who created it.
6-5	Presentation uses 2 or more media. There are some technical problems, but the viewer is able to follow the presentation with few difficulties.	Students worked together on the project as a team with defined roles to play. Most members fulfilled their responsibilities. Disagreements were resolved or managed productively.	The project presents information in an accurate and organized manner that can be understood by the intended audience. There is a focus that is maintained throughout the piece.
4-3	Presentation uses 2 or more media, but technical difficulties seriously interfere with the viewer's ability to see, hear, or understand content.	Presentation is the result of a group effort, but only some members of the group contributed. There is evidence of poor communication, unresolved conflict, or failure to collaborate on important aspects of the work.	The project has a focus but may stray from it at times. There is an organizational structure, though it may not be carried through consistently. There may be factual errors or inconsistencies, but they are relatively minor.
2-1	Multimedia is absent from the presentation.	Presentation was created by one student working more or less alone (though may have received guidance or help from others).	Project seems haphazard, hurried or unfinished. There are significant factual errors, misconceptions, or misunderstandings.
	Multimedia score =	Collaboration score =	Content score =

(Adapted from San Mateo County Office of Education)