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Effects of Project-based Learning on Students' Motivation and Self-efficacy

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The study aims to investigate the effect of project-based learning on students' motivation and their self-efficacy. Project-based learning is an instructional technique which has been proven to be effective because it allows students to play an active role in their own learning process. By participating in a project-based learning model, students are able to construct their own knowledge and reflect upon their learning projects, resulting in increased motivation and self-efficacy. In this particular study, 79 students were distributed among 13 teams and each team shared a common goal. Each team was given a project, and every student in each team was assigned a task that would help the team achieve the preset goal. The project in this study was a video production that required students to work together in collaborative ways. The results of this study support the idea that project-based learning has a positive influence in students' motivation and is able to enhance their cooperation skills as well. Furthermore, student responses in the survey taken after the project shows that the students' perceptions toward project-based learning are very positive. Further research is suggested to find the effects of project-based learning on students' motivation and self-efficacy in different levels, grades, or age groups.

Keywords: project-based learning, motivation, self-efficacy, collaborative learning, video production.

1. INTRODUCTION

In recent years, educators have experimented with various teaching methods in an effort to find more effective ways of teaching and learning. Flipped learning, project-based learning, problem-based learning, and cooperative learning have received a lot of attention lately, mainly because they deal with a paradigm shift: from teacher-centered to student-centered learning.

In student-centered learning, student motivation is crucial. According to Dörnyei (1988), motivation is a fundamental strength for students when learning a language. In the expectancy-value theory (Eccles & Wigfield, 1995), motivation is usually a combination of student needs and goals. Furthermore, Deckers (2005) insists that the goal is to motivate the students' actions to achieve. Thus, teaching methods which strengthen student motivation are more relevant than ever.

It is also important to consider that students' learning motivation is one of the sub-factors of students' self-efficacy. Self-efficacy has been studied primarily in the context of individual learning and according to the results of previous studies (Joo et al., 2000; Pintrich & Goot, 1990; Shunk & Pajares, 2004), self-efficacy has not been proven to hinder achievement, but rather enhances it. Thus, the concept of self-efficacy should not be overlooked when studying learning motivation.

Student-centered learning methods are ideal in that they allow students to organize their own learning contents. Project-based learning enables students to find practical and complex problems by themselves, plan solutions, and perform collaborative research to solve problems (Lee et al, 2015). In a collaborative classroom atmosphere, learning occurs while students are in the process of solving problems and sharing results. Such an environment requires teachers and learners to play roles that are different from the roles they have been accustomed to (Choi, 2010). This is because the problem-solving process in project-based learning consists of cooperative learning and therefore students must take more responsibility for the acquisition of their social skills, and not just their academic skills. While working together on a common project, students learn to cooperate effectively with other people and learn various perspectives and approaches (Byun, 2007).

One way to facilitate collaboration skills is by using technology. Most students nowadays are familiar with using digital technology in their schoolwork. In project-based learning, students can use their technological skills to participate in learning activities and learn not only language skills (Musa, Mufti, Latiff, & Amin, 2011) but also how to cooperate with their team members and how to collaborate with their group members to achieve predetermined learning objectives. Chang and Lee (2010) support this belief: "Students acquire core concepts of learning that require the application of contextual knowledge through collaborative projects". Projects that involve multmi-media and technology lend themselves easily to group work, which fosters collaboration and cooperation.

In this project-based learning study, students are encouraged to create their own video projects in an attempt to measure growth in the areas of motivation and self-efficacy. By doing so, we address the importance of student-based learning while creating opportunities for students to use technology to facilitate learning, not just for themselves, but with others. Furthermore, this study also attempts to gain the students' perspectives on the project and the growth of their self-development (if any) during the process. In summary, this study

examines the effect of project-based learning on students' motivation and their self-efficacy.

Three research questions for this study are as follows:

1) What are the effects of project-based learning on students' motivation in English learning?
2) What are the differences in pre-and post-treatment students' self-efficacy after the project-based learning?
3) What are the students' perceptions towards project-based learning?

2. REVIEW OF THE LITERATURE

2.1. Project-based Learning

Project-based learning is defined as an instructional technique that enables students to perform meaningful tasks (Howard, 2002). Project-based learning can contribute to the development of students' creativity, internal motivation and interest, responsibility, communication skills with others, social skills, cooperation, and problem solving ability. Baillie and Fitzgerald (2000) believe that project-based learning improves cooperation and responsibility, problem solving ability, communication ability, creative thinking, critical thinking, and self-directed learning ability. Based on Dewey's empirical philosophy, project-based learning is a method where students learn problem-solving through activities which involve in-depth work on an assigned project. Project-based learning is characterized by meaningful activities, learning, collaborative decision making, and problem-solving through digital video use, and the changing role of teachers (Howard, 2002).

In project-based learning, students solve challenging and authentic problems by working in collaboration with each other. Therefore, project-based learning not only has students apply their knowledge to their experience, but it also lets students work in teams to solve problems (Solomon, 2003). Small group activities play an important role in project-based learning for cooperative decision-making and problem-solving among team members. Sometimes it is very easy for students to develop individual plans for a project, but it is necessary to determine the best solution through agreement and negotiation within the team. This is will always be a challenge for teachers. Team project learning activities can lead to the problem of a free rider, a group member who is dependent on the efforts of other team members, and the evaluation of contributions by each team member, without performing their own tasks. However, learning of collaboration is very important, and students can learn real-world skills naturally through project-based learning (Lee & Lim, 2012, Kim, 2012; Kim, 2011, Mulvey & Klein, 1998).

Students autonomously analyze their investigation to solve their problems or make conclusions by submitting the project task or presenting it after constructing the knowledge needed to organize their ideas and their work. This process is done through cooperative activities, monitoring the processes, and giving feedback on their activities (Thomas, 2000; Torp & Sage, 1998). In addition, students involved in project-based learning are given authentic projects in which the goal is to help students conceptualize what has been taught and how these concepts apply to the real world. English language learners in particular can understand how to use English and can realize educational values (Hung, Keppell & Jong, 2004). In order to achieve these effects, teachers should provide timely feedback during class. That is to say, taking some time for self-examination through feedback activities in project-based learning is considered to be a learning process that involves cooperating with project team members and searching for common as well as individual learning outcomes.

2.1.1. The relationship between technology and English learning

In the late 1980s and early 1990s, new perspectives on technology and language appeared in English learning. Since the 1980s, the relationship between technology and English learning has shifted from learning about technology to learning with technology (Larmer & Mergendoller, 2010). Using technology as a feature of constructivism and meaningful learning, students can participate in real work and collaborate to achieve goals and complete projects. Thus, technology can be incorporated into the language learning process. Technology is believed to have great potential to create the best language learning environment (Al-Seghayek, 2001). For example, movies and TV were used to provide enhanced authentic input, while computer- mediated communication technology was used to engage learners in real life situations. The computer was also used to improve the quality feedback opportunities. Larmer and Mergendollar (2010) state that with the notion that technology should be a partner in learning, multimedia has become a trend in replacing traditional classrooms.

The use of technology for learning a second language can have many effects. Traditionally, the best environment for language learning has been designed by teachers because it is presumed that they have the knowledge to do so. This is very understandable given the fact that until very recently technology resources were rare and available only to a limited extent in formal education environments. In recent years, the rapid adoption of the internet and computer technology has allowed individual students access to a variety of technologies that are much more powerful than previously accessible to teachers (Zhang, 2010). In theory, today's technology allows anyone to learn a language like never before because unlike the past, today’s students have access to rich data for input, a variety of opportunities to participate in different types of practices, and a flexible mechanism for feedback.

2.1.2 .The role of technology in project-based learning

In regards to the role of technology in English learning, technology has been playing important role in English as a foreign language (EFL). Garett (1991) says that technology is able to integrate language learning, cultural understanding, practical learning materials, and learning environments. In other words, technology can provide students with real-world data on language and culture that can have an impact on assimilation education and the EFL environment. The benefits of using English language learning techniques can provide students with many opportunities to practice the new discourse community (Warschauer & Meskill, 2000).

Project-based learning emphasizes teamwork and knowledge building while technology learning emphasizes using technology as a tool to stimulate critical thinking (Hung, Kepell, & Jong, 2004). Howard (2002) claims that tasks should take the form of meaningful projects. English learning has occurred when students participate in motivational and challenging realistic and practical projects.

On the other hand, projects which use technology can create an authentic, meaningful, collaborative, and active learning environment (Henderson et al., 2010). In this study, project-based learning using technology was integrated into project planning and conceptualization for research purposes.

2.2. Motivation and Self-efficacy

2.2.1. ARCS model of motivation

Learning motivation is defined as the tendency of people to discover and benefit from meaningful learning activities (Wlodkowski, 1999). There is substantial evidence that motivation is positively related to educational outcomes. Motivated learners consider learning activities meaningful and valuable and try to gain from them. It is the defining factor that affects the achievement of a specific goal and the learning behavior that continues until the goal is achieved (Brophy, 1988). In general, motivation refers to the reason for a specific action, that is, it has the characteristics of inducing certain behaviors, presenting a sense of direction and continuing it (Kim, 2004). In other words, it is the power to initiate action, determine direction, and determine the persistence and intensity of action.

Motivation also emphasizes the idea that potential student behavior will depend on the achievement of students as well as the value of the target goal. As for value, it is the belief of students that they can participate in their class activities (Printrich, Schunk, & Meece, 2008). Brophy (1988) also suggests that learning motivation is caused by various internal

and external factors such as intellectual curiosity, competitiveness, satisfaction, and reward, and it gives not only mere action but also the power and direction of action.

The most basic way to classify the types of motivation is intrinsic motivation and extrinsic motivation. In intrinsic motivation, the motive itself is associated with the rewarding activity, so it is not the same as reward and punishment. It is distinguished from extrinsic motivation by external factors (Pintrich & Schunk, 2001).

However, Keller (1999) recognized the importance of motivation among studies on cognition and information processing, and incorporated the motivational aspects of learning into teaching theory. Keller 's ARCS model stands for Attention, Relevance, Confidence and Satisfaction, and ARCS is an important component of motivation. In other words, a motivational activity is one that focuses the students' attention, confirms the relevance of learners' interests in short and long term, aims to inspire confidence that students can acquire new abilities, and makes them satisfied with the results of successful learning tasks. Table 1 shows components of the ARCS model (Keller, 1987).

TABLE 1

Components of the ARCS Model

Attention	Relevance	Confidence	Satisfaction
Perceptual Arousal	Goal Orientation	Learning Requirements	Intrinsic Satisfaction
Inquiry Arousal	Motive Matching	Success Opportunities	Extrinsic Reward
Variability	Familiarities	Personal Responsibilities	Equity

Keller (1987) believes that the motivation factors of attention, relevance, confidence, and satisfaction (ARCS) and the motivational design process that induces and maintains each sub-element are reflected and integrated in the whole course design to incorporate into the actual class. Keller (1999) also noticed that when students want to learn, they want to engage in high work-related activities and do not want to get confused by unnecessary motivation activities. Several previous studies have shown the benefits of project-based learning for English learning. That is to say, it can motivate students to participate in class activities and help them enjoy learning English (Richards & Rodgers, 2001).

2.2.2. Academic self-efficacy in the classroom

Bandura (1986, 1995, 1997) defines self-efficacy as a belief in one's ability to organize and perform the activities required to achieve a certain goal. It also provides a foundation for student motivation and personal accomplishment. Self-efficacy refers to the perceived efficacy, belief or expectation of self-efficacy (Bong, 2004). According to Bandura (1997), students with strong self-efficacy will take on difficult tasks, show more interest in the task, and will recover quickly if disappointed. However, people with weak self-efficacy tend to

avoid difficult tasks and cannot complete difficult tasks because they tend to think their skills are far behind and lose confidence in their personal abilities. Also, Park (2003) points out in his study that students with a high ability to solve difficult problems had high self-efficacy.

Pajares (1996) found that self-efficacy beliefs are related to other self-beliefs as well as academic changes and outcomes, and self-efficacy is a strong predictor of relevant academic outcomes. Zimmerman (2000) also points out that over the past several decades self-efficacy has emerged as a highly effective predictor of student motivation and learning.

Self-efficacy factors include self-confidence, self-regulation efficacy, task difficulty preference, and attribution (Bandura, 1977). Confidence as a component of self-efficacy can be reduced to the degree of individual confidence or belief in one's ability (Sherer, Maddusx, Mercandante, Prentice-Dunn, & Jacobs, 1982). Self-regulated self-efficacy refers to self-regulation. Because self-regulation is the basis of human behavior, humans observe their behavior, judge their performance in light of their goal criteria, set new goals if positive, and add behaviors to achieve their goals if negative (Bandura, 1986: Zimmerman et al., 1992). Students with high self-efficacy choose challenging and specific goals (Bandura, 1988; Latham & Locke, 1991). According to Bandura (1994), task difficulty preferences are expressed through the process of selecting challenging tasks that they feel can be controlled and manipulated. Bandura (1993) also argues that attribution influences self-efficacy through synchronic processes. Self-efficacy is not a simple predictor of individual behavior, but a dynamic and cognitive mediating process of individual behavior.

It can be summarized that self-efficacy has been shown to have a significant effect on student proficiency (Magogwe & Oliver, 2007). As Zimmerman argues, self-efficacy has shown a positive response to improving learning methods and predicting achievement outcomes. Students' self-efficacy regarding their academic ability can play an essential role in motivating achievement. Self-efficacy is a major theory that influences not only the role of cognitive mediators that link behavior with the main variables that determine human behavior, but also social types and emotions.

2.2.3. Motivation and self-efficacy

Based on previous research (Yun & Kim, 2006), self- efficacy was positively correlated with all its sub-factors and motivation was the highest among them. According to Eccles and Wigfield's expectancy value theory of achievement motivation, the motivation of students' behavior comes from the combination of their needs and the value of the goals available in the environment (Eccles et al., 1983). It also stresses the idea that the possibility of students' behavior depends on not only the value of the goal, but also on expectation attaining the goals. Schunk, Pintrich, and Meece's (2008) focused on how students construe meanings of their experiences in their achievement contexts and students'

beliefs and judgments about capability to perform their tasks successfully (p. 44). Value is the reason why students engage in their tasks (Jang, 2008, p. 800). If they do not place value in the task, students might not participate fully in their work, and if they don't have enough confidence to complete the task, the results may lack meaning for them.

Bandura (1997) pointed out that students with strong sense of self-efficacy would accept challenging tasks, increase interest in tasks and recover quickly from any disappoints. Therefore, students' self-efficacy about academic capabilities played an important role in their motivation to achieve (Zimmerman, 2000). The students' self-efficacy gives them the confidence to make informed decisions and participate successfully in the learning tasks. In addition, learning motivation and self-efficacy have a close relationship with each other I as shown in n the previous study (Kim & Jung, 2012, Lee & Choi, 2015): the higher the learning motivation was, the higher the self-efficacy was.

3. METHODS

3.1. Participants and Procedure

The participants of this study were 79 students who were taking general English as a three-hour elective course. The goal of the course is to improve students' English speaking and listening abilities. The role of the teacher was the facilitator, the questionnaire creator, the presentation observer, and the assistant of the whole class. Students were told about the projects and English presentations and that there would be questionnaires to fill out for the research.

In this study, there was a performance project that applied technology. Participants in in each 6-student team were asked to form their own teams, engage in team activities, and produce a short video, all without interference from the instructor. The first topic of the project was "resume and cover letter video" in which the students prepares their future job interviews. Each team had an idea meeting to choose their proper interview questions and made story boards. When they finished making story boards, students did role plays of the virtual situation of the interview. Instead of preparing written resumes and cover lettesr to apply for their positions at fictional companies, they made a short video with their group members. Students in the project needed to work collaboratively to complete the given project in two to three weeks. After making one group video with the general interview questions and answers that were pre-determined by the group, each student made their own personal video, introducing themselves in the virtual situation of the interview.

This was an ideal opportunity for students to solve realistic and meaningful problems. In order for students to experience what they could do in their daily lives, the class provided students with an opportunity to move into practical activities outside the classroom.

Prior to class introduction, there was a pre-survey and a definition of project-based learning provided. Afterward, the project was explained. Students could contact the teacher via e-mail, Facebook, or other network services or interviews when difficulties occurred or when assistance was needed during the project activity. At least two weeks before the presentation, a teacher confirmed the date of the presentation which was determined at the beginning of the semester, and the students were informed that the project should be uploaded to ther websites or on YouTube. On presentation day, students had to present their video work on YouTube or on their website. While the team was presenting, each student was asked to write a feedback worksheet. At the end of all the presentations, each team shared their feedback and engaged in peer correction. Students also needed to complete the English motivation, self-efficacy, and participation of project-based learning questionnaire.

3.2. Data Collection and Analysis

Data collection for this study took place over three months, from March 2017 to June 2017. In this study, data were collected through questionnaires. The motivational questionnaire consisted of preliminary surveys before the project and follow-up surveys after the project class activities. In order to measure the motivation, Keller 's (1999) motivational design of instruction model was reconstructed and used. The other questionnaire dealt with English learning motivation, self-efficacy, and participation in project-based learning.

The self-efficacy measurement tool was reconstructed from the academic self-efficacy scale developed by Sherer and Maddux (1982), Kim and Park (2001). The Reliability was .992 (Cronbach α). Based on the characteristics of project-based learning presented by Douglas (2000), the questionnaire was reconstructed in relation to the student's participation in project-based learning. The reliability coefficient (Cronbach α) calculated to check the reliability of the test report was .77. The score format for each criterion is the Likert 5 scale: the formula was rated as 5 points for strongly agree, 4 points for agree, 3 points for neither agree nor disagree, 2 points for disagree, and 1 point for strongly disagree. The students' project work was evaluated in four areas: language use and learning, cooperation, authenticity, and attitude. This was done to examine the relationship between students' self-efficacy and participation of project-based learning.

Quantitative data analysis was done in this study. The quantitative data was analyzed using SPSS statistical software package. A paired *t* test was to use compare the results of the two questionnaires. Pearson's correlation coefficient was performed to determine the relationship among the students' self-efficacy and motivation to learn English, and project results. In addition, descriptive statistics were used to analyze the students' responses to the project questionnaire.

4. FINDINGS

4.1. The Effects of Project-based Learning on Students' Motivation in English Learning

In order to investigate whether students' motivation to learn English greatly changed after participating in the project, we compared the total average scores of the pre-and post-English learning motivation questionnaires with the paired *t* test as shown in Table 2.

According to Table 2, the mean of the post-test was higher than that of the pre-test, and the difference was significant: t(79) = -4.042, p = 000 < .05). From these results, it can be determined that the project had a great impact on students' motivation to learn English.

TABLE 2

Pre- and Post-Treatment English Learning Motivation

	M	*SD*	*N*	*df*	*t*
Pre-motivation	97.32	8.00	79	92	-4.042*
Post-motivation	102.42	8.23	79	92	-4.042*

*$p < .05$

If so, what aspect of motivation did project-based learning influence in the student's English learning? This study was based on Keller's ARCS model (Keller, 1987). ARCS model is known as attention (A), relevance (R), confidence (C), and satisfaction (S).

TABLE 3

Pre- and Post-Treatment Students' ARCS Subscale Responses

		M	*SD*	*t*	*p*
Attention	pre	23.08	4.556	-3.88	.00
	post	24.01	3.413		
Relevance	pre	31.82	6.236	-3.22	.00
	post	34.70	4.258		
Confidence	pre	26.47	2.719	-1.14	.25
	post	27.15	2.412		
Satisfaction	pre	31.45	4.357	-1.22	.28
	post	32.55	3.956		

As shown Table 3 the pre-mean score of attention (A) was 23.077 and the post-mean score was higher, at 24.010. There is a significant difference as the *t* value is -3.88 and the *p* value is .00 ($p < .05$). In case of relevance (R), the pre-mean score is 31.815 and the post-mean is greater: 34.700. The *t* value is -3.22 and the *p* value is .00 ($p < .05$) which is significantly different.

However, in the case of confidence (C) and satisfaction (S), the pre- and post *t* values (-1.14, -1.22) and *p* values (.25, .28) were not significant ($p < .05$). This result shows that confidence and satisfaction are motivational factors that do not improve in the short term.

4.2. Self-efficacy

Table 4 shows the correlation between the average grades of self-efficacy and average grades of the project. As shown in Table 4, the average grade of self-efficacy and the average grade of project were statistically correlated with $r = .345$ ($p < .001$).The higher the self-efficacy of the student, the higher the self-efficacy of the project-based learning. This result supports Bandura's claim that students with low self-efficacy tend to avoid difficulties, while students with high self-efficacy tend to accept challenges (Bandura, 1997).

TABLE 4

Correlation Between Self-efficacy and Project Grades

	Self-efficacy	Project Grades
Self-efficacy		.345***
Project Grades	.345***	

Note. ***$p < .001$

Furthermore, the relationship between students' self-efficacy and post-English learning motivation is shown in Table 5. Table 5 shows that students' post-English learning motivation was significantly related to self-efficacy. ($r = .304$, $p = .003 < .05$). This result supports Zimmerman's findings that self-efficacy seems to be closely connected to motivation (Zimmerman, 2000).

TABLE 5

Correlation Coefficient Between Self-efficacy and Post-English Learning Motivation

	M	*SD*	*N*	*r*
Post-English Learning Motivation	102.33	8.32	79	.304*
Students' self-efficacy	43.66	8.65		

Note. *$p < .05$

Also Table 6 shows the result of paired *t* test on pre-and post-self-efficacy. Students' post-self-efficacy is higher ($M = 102.54$, $SD = 8.10$) than their pre-self-efficacy ($M = 96.85$, $SD = 7.51$) and there is a significant difference between pre- and post-self-efficacy ($p = .05 < .05$).

TABLE 6

Paired *t*-test on Pre- and Post- Self-efficacy

Self-efficacy	*M*	*SD*	*N*	*df*	*t*	*p*
pre	96.85	7.51	79	48	-5.00	.05
post	102.54	8.10				

4.3. Students Perception toward Project-based Learning

The frequencies and percentages of students' perception of their participation in the project were analyzed. As Table 7 shows, students learned a lot of English vocabulary and language usage when they were doing the team project (9 % of students answered strongly agree and, 44.5% of them answered agree in question 1). In question 2, over 60% of students agreed that the project helped them to learn English actively (15.5 % of students answered strongly agree, and 50% of them answered agree). Questions 3 and 4 examined cooperation through project-based learning, and the results show that 33% of students strongly agreed and 42% of them agreed in question number 3, and also a very high percentage (35%) of students strongly agreed, and 37% of them agreed in question 4. Questions 5 and 6 asked about the authenticity of the project. More than 50% of students strongly agreed or agreed that the project was authentic.

TABLE 7

Result of Project Participation Questionnaire (*N* = 79)

	SA N (%)	*A N (%)*	*N (%)*	*D (%)*	*SD (%)*
Q1. Learn Language	7 (9)	35 (44.5)	26 (33.7)	11 (14)	0 (0)
Q2. Learn Actively	12 (15.5)	39 (50)	23 (30)	5 (6.5)	0 (0)
Q3. Work Cooperative	26 (33)	33 (42)	15 (20)	5 (6.5)	0 (0)
Q4. Improve Relationship	27 (35)	29 (37)	20 (25.5)	4 (5.1)	0 (0)
Q5. Close to Life	13 (16.5)	40 (50.9)	21 (26.7)	4 (5.1)	0 (0)
Q6. Authentic Materials	15 (19)	40 (50.9)	20 (25.5)	4 (5.1)	0 (0)
Q7. Preferance PBL	18 (29)	40 (50.9)	10 (12.7)	1 (1.3)	0 (0)
Q8. Trouble	1 (1.3)	12 (15.5)	33 (42)	29 (37)	4 (5.1)
Q9. Change Attitude	15 (19)	39 (50)	15 (19)	10 (13)	0 (0)
Q10. Confident	5 (6.5)	50 (64.1)	16 (20.3)	8 (10)	0 (0)

The students generally thought that the content and materials of the project were authentic and relevant to their daily lives. The results of Study Question 8, consistent with Questions 7 and 10, showed that students did not dislike learning English through the project. 29 % of the students answered strongly agree, and 50.9% of them answered agree in question 7, and 1.3 % of the students answered strongly agree, and 15.5% of them answered agree in question 8, indicating that for some, the project was troublesome. For students' attitudes toward the project-based learning, 69% (19% of the student's strongly agreed and 50% of

them agreed) of total students changed their attitudes toward English learning by doing the video project. Finally, the result of question 10 shows that over 70% (6.5% strongly agreed and 64.1% agreed) of the students had strong confidence and hoped the project-based learning could become part of their regular classes.

5. DISCUSSION AND CONCLUSION

As mentioned earlier, learner motivation is very important in student-centered learning. This motivation from teachers is a fundamental force through which students learn the language, and based on the expectation-value theory, motivation is usually a combination of student needs and goals. In this sense, self-efficacy, which indicates expectations of students' goals, should not be overlooked when examining learning motivation. Therefore three research questions were suggested.

The first research question was what the effects of project-based learning on students' motivation in English learning were. The result of this study shows that the project has had a great impact on students' motivation to learn English. This is evident in the results, where the mean of post-test was significantly higher than that of pre-test (t (79) = -4.042, p = .000 < .5). As well, attention (A) and relevance (R) were significantly different in the pre- and post-test results in the sub-scale of the students' motivation. However, in the case of confidence (C) and satisfaction (S), there was no significant difference between the pre- and post-score of t value (-1.14, -1.22) and p value (.25, .28) (p < .05). These results show that confidence and satisfaction are motivational factors that do not improve in the short term.

The second research question was what the relationships between students' motivation and their self-efficacy after project-based learning are. According to the results of the study, the average self-efficacy and project self-efficacy were statistically correlated with r = .345 (p < .001). That is to say, the higher self-efficacy of the student, the higher the self-efficacy of the project-based learning. In addition, the result of the relationship between students' self-efficacy and post-English learning motivation appear to be closely related to each other.

The third research question dealt with the students' perceptions toward project-based learning. According to the results, the students' perceptions toward project-based learning were very positive. There were 10 items to examine students' perceptions towards project-based learning. The results of the study show that compared to traditional learning methods, students learned more vocabulary and language usage through project-based learning (more than 50% of students answered strongly agreed and agreed) and experienced an increase in learning motivations while at the same time adopting more positive attitudes towards language learning. Over 70% (6.5% strongly agreed and 64.1% agreed) of the

students had strong confidence in English learning through project-based learning and hoped that project-based learning could be incorporated into future classes.

In summary, students' participation in project-based learning using technology has motivated them to learn. Particularly, it showed that sub-factors of motivation influenced attitude and relevance. Thus, in order for learning to happen, it was found that the students had to be interested in learning, and the relevance of the project must be related to the students' experience, purpose of learning, and real life. In terms of self-efficacy, students who had low self-efficacy tended to avoid to doing difficult class activities, while students with high self-efficacy tended to accept challenges. After participating in the project, the survey results show that students' perception of project-based learning is very positive. They not only learn more vocabulary and language usage, but also improve learning motivation and attitudes by learning English through the project.

The aim of this research is to investigate the effects of project-based learning on students' motivation and self-efficacy. According to the research findings and result of this study, several implications can be derived.

First, project-based learning can incorporate the use of English vocabulary and the actual language in use when performing a team project. It can also stimulate student motivation in English learning. This study can facilitate students' motivation to learn English and cause them to be more attentive to their class activities, and can help the teacher ensure that activities are relevant to daily life. Project-based learning can improve student preference for English learning and participation and therefore most students were positive about this teaching model. Second, teachers should be aware of the difference in the self-efficacy of individual students. Based on the result of this study, students with different self-efficacy levels had different levels of motivation while doing the project. Third, for teachers who want to enhance the relationships among students, project-based learning is beneficial. In conclusion, the result of this study clearly supports the notion that project-based learning has advantages in students’ learning motivation, especially students’ attention and relevance , both of which have an effect on collaborative learning. There are some limitations to this study. First, we need to expand the subjects of the study. The sample size of 79 students is not sufficient to generalize the findings.

Second, teachers' perceptions and team atmospheres need to be expanded and diversified for the future research. Because these variables can influence students' learning motivation, there may be many others that can serve as variables, so it is important to increase the sample size and participants in various majors and schools to adopt a more effective experimental design.

In addition, the number of student projects can be increased to obtain more accurate results. There is only one video making project for this study, and one project is insuffient to measure the level of the participants’ activity. All student projects were graded by the

students' teacher. In this situation, the validity of reliability may not accurately represent students' efforts. For further studies, students' project work should be graded by individuals other than the instructor.

REFERENCES

Al-Seghayek, K. (2001). The effect of multimedia annotation modes on L2 vocabulary Acquisition: A comparative study. *Language Learning & Technology*, *5*(1), 202- 232.

Baillie, C. & Fitzgerald, G. (2000). Motivation and attribution in engineering students. *European Journal of Engineering Education, 25*(2), 45-155.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall, 122-147.

Bandura, A. (1986). *Social foundation of thought and action: A social cognitive theory.* 335-453.

Bandura, A. (1988). Self-regulation of motivation and action through goal systems. In V. Hamilton, G. H. Bower, & N. H. Frijda (Eds.), *Cognitive perspectives on emotion and motivation* (pp. 37-61). Dordrecht: Kluwer Academic Publishers.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, *28*(2).

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (pp. 71-81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1998). Bandura, A. (Ed.) (1995). *Self-efficacy in changing societies*. New York; Cambridge University Press.

Bandura, A. (1997). Self-efficacy and health behavior. In A. Baum, S. Newman, J. Wienman, R. West, & C. McManus (Eds.), *Cambridge handbook of psychology, health and medicine* (pp. 160-162). Cambridge: Cambridge University Press.

Barnett, E. (2006). *Validation experiences and persistence among urban community college students*. Unpublished doctoral dissertation. University of Illinois, Illinois.

Bong, M. (2004). Academic motivation in self-efficacy, task value, achievement goal orientations, and attribution beliefs. *Journal of Educational Research Washington*, *97*(6), 287-298.

Brophy, J. (1988). Research linking teacher behavior to student achievement potential implications for instruction of chaper1 student. *Educational Psychologist. 23*, 235-286.

Byun, Y. K., Kim, Y. H., & Son, M. (2007). *Educational methods and educational engineering*. Seoul: Hagjisa.

Chang, L. C., & Lee, G. C. (2010). A team teaching model for practical project-based learning in high school: Collaboration computer and subject teachers. *Computer & Education*, *55*, 961-969.

Choi, J. I., & Jang, K. W. (2010). *Teaching with PBL*. Seoul: Hagjisa.

Deckers, L. (2005). *Motivation*: *Biological, psychological, and environmental*. Boston, MA: Person.

Douglas, S., & Fleming. (2000*). A teacher's guide to project-based learning*. Fleming. D. S. (2000*). A teacher's guide to project-based learning*. Washington: Office of Educational Research and Improvement.

Dörnyei, Z. (1988). Motivation and motivating in the foreign language classroom. *The Modern Language Journal, 78*(3), 273-284.

Dörnyei, Z. (2009). *The L2 motivational self-system*. In Dörnyei, Z., & Ushioda, E., (Eds.), Motivation, language identity and the L2 self (pp. 9–42). Clevedon, UK: Multilingual Matters. Matters.

Eccles, J. S., & Wigfield, A., (1995). In the mind of the actor: The structure of adolescents' achievement task values and expectancy-related beliefs, *Personality and Social Psychological Bulletin, 21*(3), 215-255.

Garett, N. (1991). Technology in service of language learning: Trend and issues. *The Modern language Journal*, *75*, 74-101.

Henderson, M., Auld, G., Holknero, B., Rusell, G., Seah, W. T., Fernando, A., & Rome, G. (2010). Students creating digital video in the primary classroom: Student autonomy, learning outcomes, and professional learning communities. *Australian Educational Computing*, *24*(2), 12-20.

Howard, J. (2002). Technology-enhanced project-based learning in teacher education. *Technology and Teacher Education*, *10*(3), 343-364.

Hung, V. H. K., Keppell, M., & Jong, M. S. Y. (2004). Learners as producers: Using project-based learning to enhance meaningful learning through digital video production*. Proceedings of the 21st ASCILITE Conference (*pp. 428-436), Perth, Western Australia.

Jang, H. (2008). Supporting students' motivation, engagement, and learning during an uninteresting activity. *Journal of Educational Psychology, 100*(4), 798-811.

Joo, Y. J., Bong, M., & Choi, M. (2000). Self-efficacy for self-regulated learning, academic self-efficacy, and internet self-efficacy in web-based instruction. *Educational Technology Research and Development, 48*(2), 5−17.

Keller, J., (1987). Development and use of the ARCS model of instructional design. *Journal of instructional development*, *10*(3), 2-10.

Keller, J. (1999). Using the ARCS motivational process in computer-based instruction and distance education. *New Directions for Teaching and Learning, 78*, 39-47.

Kim, J. (2004). *Educational psychology*. Seoul: Seohyun-sa.

Kim, B. K., & Jung, C. Y. (2012). The casual relationship among career decision-making self-efficacy, self-leadership, problem solving ability, and career motivation. *Journal of Agricultural Education and Human Resource Development, 44*(2), 49-71.

Kim, A. Y., & Park, I. Y., (2001). Construction and validation of academic self-efficacy scale. *Journal of Educational Research*, *39*(2), 31-42.

Kim, H. S., & Lee, J. H. (2012). A study on the moderating role of participatory safety climate in the relationship between task and relationship conflicts in the team. *Journal of Korean Society Business Administration*, *19*(6), 115-132.

Kim, S. I. (2001). Teaching Method using Job Assignment as a solution on the adverse effects of peer evaluation in team-based learning. *Journal of the Korea Academia-Industrial cooperation Society, 12*(6), 2543-2547.

Latham, G. P., & Locke, E. A. (1991). Self-regulation through goal setting. *Organizational Behavior and Human Decision processes*. *50*, 212-247.

Larmer, J. M., & Mergendoller, J. R. (2007). Seven essentials for project learning. *Educational Leadership, 68*(1), 1-4.

Lee, J. W. & Choi, E. S. (2015). An analysis of structural relationships between variables of university students' self-leadership, social support, career motivation, career decision-making self- efficacy, and career maturity. *Interdisciplinary Journal of Adult & Continuing Education, 18*(1), 33-54.

Lee, H., & Lim, C. (2012). Peer evaluation in blended team project-based learning: What do students find important? *Educational Technology & Society, 15*(4), 214–24.

Lee, S. D., Kim, J. O., Lee, J. H., Lee, K. W., Kong, I. Y., Lee, H. J., Kwak, J. E., Kim, J. H., & Jung, S. A. (2015). *Meet project classes and curriculum: Happy mentoring with engaging and communicating*. Namyangju: Happy Future.

Magogwe, J. M., & Oliver, R. (2007). The relationship between language learning strategies, proficiency, age and self-efficacy beliefs: A study of language learners in Botswana. *System*, *35*, 338-352.

Mulvey, P. W., & Klein, H. J. (1998). The impact of perceived loafing and collective efficacy on group goal process and group performance. *Organizational Behavior and Human Decision Processes, 74*(1), 62-87.

Musa, F., Mufti, N., Latif, R. A., & Amin, M. M. (2011). Project-based learning: Promoting meaningful language learning for workplace skills. *Procedia-Social and Behavioral Sciences, 18*, 187-195

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, *66*(4): 543-578.

Park, H., (2013). The role of motivational factors in the development of self-regulated learning. *Korean Educational Psychology*, *17*(1), 55-70.

Pintrich, P. R., & Groot, E. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology, 82*, 33−40.

Pintrich, P. R., & Schunk, D. H. (2001). *Motivation in education: Theory, research and applications*. Englewood Cliffs, NJ: Prentice Hall Merrill.

Pintrich, P. R., Schunk, S. R., & Meece, J. L. (2008). *Motivation in education*. Upper Saddle River, NJ, Columbus: Ohio, Prentice Hall Merrill.

Richard, J. C., & Rodgers, T. S., (2001). *Approaches and Methods in Language Teaching*, New York: Cambridge University press.

Sherer, M., & Maddux, J. E., Mercandante, B., Prentice-Dunn, S., & Jacobs, B (1982). The self-efficacy scale: Construction and validation. *Psychological Reports*, *51*(2), 663-671.

Shunk, D. H., & Pajares, F. (2004). Self-efficacy in education revisited: Empirical and applied evidence. In: D. M. Inerney & S. Van Etten (Eds.), *Big theories revisited (4th ed).* Greenwich, CT: Information Age Publishing.

Solomon, G. (2003). Project-based learning: A primer. *Technology and Learning, 23*, 20-30.

Thom, M. (2011). Project-based learning: A bridge just far enough. *Teacher Librarian*, *39*(2), 38-42.

Thomas, J. W. (2000). *A review of research on project-based learning*, San Rafael, CA: Autodesk Foundation.

Torp, L., & Sage, S. (1998). *Problems as possibilities: Problem-based learning for K-12 education*. Alexandria, VA: Association for Supervision and Curriculum Development.

Wlodkowski, R. J. (1999a). *Enhancing adult motivation to learn*. San Francisco, CA: Jossey-Bass.

Warschauer, M., & Meskill, C. (2000). Technology and second language learning. In J. Rosenthal. (Ed.), *Handbook of undergraduate second language education* (pp. 303-313), Mahwah, New Jersey: Lawrence Erlbaum.

Wlodkowski, R. J. (1999). *Enhancing adult motivation to learn*. San Francisco, CA: Jossey-Bass.

Yoon, E. & Kim, H. (2006). The relationship between adolescent's self-efficacy, self-esteem, and academic achievement. *Korea Institute of Youth Facility & Environment*, 133-144.

Zhang, G., (2010). *Technology uses in creating second language learning environments: When learners are creators*. Unpublished doctoral dissertation.

Zimmerman, B. J., Bandura, A., & Martinez-pons, M. (1992). Self-motivation for academic attainment, The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, *29*(3), 663-676.

Zimmerman, B. J., (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, *25*, 82-91.

APPENDIX

Project Participation Questionnaire

1) In this project, I learned a lot about English language sentence patterns and word usage, and I increased my English vocabulary.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
2) The project makes me happy to participate in English class activities.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
3) In the project, I felt it was great to work cooperatively with teammates.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
4) After participating in the project, I felt the relationship within my team improved as we worked on the project cooperatively.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
5) I felt the contents of the project were relevant.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
6) I prefer the authentic materials of the project compared to the materials in a traditional classroom environment.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
7) Learning English while doing the project was really beneficial.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
8) The project was problematic.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
9) After participating in the project, I changed my attitude toward English learning.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree
10) After participating in the video project, I found English learning is not so difficult for me.
   ① Strongly agree ②Agree ③Neither agree or disagree ④Disagree ⑤Strongly Disagree

Application levels: Tertiary

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