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Project Based Learning (PBL) Implementation for Improving Japanese Language Grammar Competence in Virtual Classroom

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ABSTRACT

This study aims to determine the implementation and improvement of learning outcomes in the virtual classroom method through Project Based Learning (PBL) method on learning Japanese grammar. The application of PBL in virtual classrooms is an alternative for active learning. Virtual classroom is one form of learning space that applies the use of current technology to shorten and eliminate distance and space, where learning is able to be carried out through social media. PBL itself emphasizes the learner's ability to apply learning into daily life through certain projects. This study uses a quasi-experimental method. The sample or data source of this research was students in semester 3 of the Japanese Language Education Study Program at one of the private universities in Jakarta. Based on the Mann Whitney test using SPSS 25, the sig value was 0.001. Because the value of sig = 0,000 <0.005, there is a significant difference between the pre-test and post-test values between before and after the application of the virtual classroom method through PBL. Based on the results of the gain in pre-test and post-test values, the result was 17%. So it can be concluded that PBL implementation in the virtual classroom cannot increase the value of learning outcomes in learning Japanese grammar.

KEYWORDS

Virtual classroom; Project Based Learning (PBL); Japanese grammar (*bunpou*)

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INTRODUCTION

In the teaching and learning process there is a reciprocal interaction between teachers and learners. In this process, there are 3 educational aspects that cannot be separated, namely affective, cognitive and psychomotor. These three aspects cannot be separated from the teacher's role in providing technical material or teaching methods used when teaching in the classroom.

Studying Japanese, especially grammar, learning consists of *kotoba* (vocabulary), *bunkei* (sentence patterns), *hyougen* (expressions), and *joshi* (particles). Of all these contents, grammar (*bunkei*) is a very important element. Because to be able to communicate properly and correctly, required knowledge are not only the mastery of vocabulary but also the mastery of grammar. Mastering grammar including mastery of number of vocabularies relevant to the grammar, Japanese

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learners can easily understand and can make even broader language units. In mastering and applying the methods used in presenting learning material it is important. The choice of learning methods or models must be considered by the teacher to plan, implement and evaluate learning. By choosing the right learning method, it is hoped that it can attract interest and motivate students to learn well.

In application of learning methods, it is very necessary to use technology as a form of following the current progress of the times. One method that covers the broadest use of technology is Virtual Classroom. Virtual classroom is a learning method that can be applied using any media, one of which is social media. Learning with social media is liberating since teachers and learners are connected but not limited by time nor distance. The application of virtual classrooms requires the capability to use technology but has advantage as it supports student centered learning. One learning model that can be applied in virtual classrooms is Project Based Learning (PBL). This model applies the ability to present the results of investigating and solving problems by learners, and produce output in the form of project results (Nurfitriyanti, 2016).

Bunpou is very important for Japanese language learners as a tool that helps them to learn new vocabularies, Kanji, and to practice reading, writing and speaking in Japanese. In learning *bunpou*, there are many topics in daily life that can be applied as projects topics. These topics then used as e-projects' topics by learners. E-projects makes it easier for learners to do the projects anywhere without having to meet in face to face with the project's team members or fellow learners. This method enforces a better long-distance communication, and research in grammar learning using PBL through virtual classrooms needs to be done as an attempt to find the best alternative in learning.

In this study, the first step of applying PBL in virtual classroom is by introducing the virtual media that will be used for the project work. The next step was making a schedule of project work activities both for the teacher and the students. The project is in the form of worksheets that the students must complete virtually. These activities were monitored by the teacher to check the progress made by the students, and teachers then conducts an assessment on students' work using worksheets at each meeting. At the end of the lesson, teacher will provide an overall assessment of students' works and projects, and then at the evaluation stage teacher will do reflection on the project that has been worked on.

LITERATURE REVIEW

Grammar is the most important part in studying language. It is not only about the structure of the language, but also including the vocabulary, syntax, tenses, and morphology. To be able to master Japanese language, learners need to learn *bunpou* and memorize vocabulary (Hiroyuki, 2014).

Grammar structure in Japanese is different from those in Indonesian. Japanese grammar uses a Subject-Object-Predicate pattern, and use particles to a Japanese sentence which different from Indonesian. Particles in Japanese have many varieties, ranging from particles expressing ownership, particles explaining the subject, identity, particle conjunctions, etc. These differences often caused difficulty in learning Japanese grammar, and often affect other abilities such as writing, speaking, listening, and reading. Hence, an appropriate method is needed to learn Japanese grammar effectively.

Virtual classroom is one of the most popular learning methods recently, which implements learning without physical meetings. This method eliminates face-to-face learning and requires the ability to use technology especially those are used as learning and teaching media such as Google classroom, Edmodo, etc. Virtual classroom used as the main method for learning nowadays, since this method is not bound by time and space. However, virtual classrooms are not necessarily the same as conventional lectures because each has advantages and disadvantages. Virtual classroom generally is expected to support the learning process in conventional classrooms, and what can be conveyed in conventional classrooms can be conveyed through virtual classrooms (Sohibun & Ade, 2017).

Virtual classroom is not entirely different from the real classroom teaching and learning process. Virtual classroom expected to bring real classroom situations using technology and change the virtual teaching and learning situation as if it becomes real. Thus, it is very possible to develop the concept of education through advanced and productive technology (Rochmah & Abdul Majid, 2018). Active learning using virtual classrooms allows learners to improve critical thinking and reasoning

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skills (Istianingrum & Karnawati, 2020). The application of virtual classrooms does not only focus on the ability of learners but also the ability to manage virtual classes by the teacher. So that mastery of technology is not only acquired by learners but also teachers.

In the application of visual classroom through PBL, learning is applied in the form of identifying problems, analyzing problems, solving problems, and how to communicate them in the right way. By grouping learners to conduct a project or solve a task, will train learners' skills in planning, organizing, negotiating, and making consensus on the issues of the task to be done, who is responsible for each task, and how information will be collected and presented (Nurfitriyanti, 2016).

The application of PBL in virtual classrooms can make it easier for teachers when giving assignments of the projects and also make it easier for students in doing and present their project. PBL is a learning model that exposes students to projects starting with essential questions by taking problems according to the real world. Then virtual media is introduced to students in planning project work. Furthermore, the teacher and students make a schedule of activities in project work and must be monitored by the teacher to check the progress of the projects being carried out by students. At the end of the lesson the teacher will also provide an assessment of the set of worksheets. At the evaluation process, the teacher will reflect on the project that has been worked on (Made, Suranti, & Sahidu, 2016)

Classes that use a PBL model have the highest student learning activities by discussing and doing assignments. In the experimental class, discussion is a student activity where students can work together with groups, remind each other and no one works individually. This discussion activity is carried out during the core activities of the teaching and learning process, and carried out in all PBL model activities (Kristanti, Subiki, & Handayani, 2016)

There are two reasons why PBL is considered as an effective instructional approach, including: 1) the learning patterns and attention span of the millennial generation do not encourage teachers to use conventional (face-to-face) pedagogy, and 2) attributes of school graduates as defined by the National Accreditation Board (NAB) to emphasizes the ability of students to solve problems that exist in real life with complex techniques that are very difficult to achieve through a series of theoretical courses and traditional pedagogue (Kaushik, 2020).

PBL is oriented to engage students in daily life problems to understand deep learning and thus improve professional skills. Contextual learning creates a professional environment to enable students to carry out tasks (projects) in real terms, support critical learning and decision making, among others. So that learning can run practically and easily (Hernáiz-Pérez et al., 2021).

PBL is conducted with the aim that the students will be able to solve a problem by making a project which is related to everyday life, students can also share opinions, and think critically to complete a given project. PBL is also given a time limit, so that students and teachers can communicate and negotiate with each other regarding the project in the period given when the learning takes place. This study aims to implement PBL in Japanese grammar learning in the virtual classroom for Japanese language learners.

RESEARCH METHOD

Research Method

This research is a quantitative study using a quasi-experimental research method with a simple two-variable correlation design. The variables in this study are independent variable x (Virtual classroom method through project based learning) and dependent variable Y (*bunpou* or grammar). To analyze the learning outcomes, tests were carried out twice using the pre-test and post-test.

The application PBL in virtual classroom in this study were conducted as follows.

1. The lecturer explains the use of grammar, and the situations in which the grammar is can be used,
2. Each group is given a specific theme which is required to use the grammar that has been learned,
3. Each group made a simple discourse about the process of applying those grammar in everyday life,
4. The results of the analysis and experimental use of the grammar as project work must be submitted to the lecturer in the form of a worksheet.

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RESULTS AND DISCUSSION

This section describes the research data obtained at field. The grammar material used in this study were taken from the book *Minna no Nihongo 2*. The pre-test and post-test data were obtained from the results of students' initial ability test and test after treatment. The data in this study was collected from 25 Japanese language learners in semester 3 as the sample in this study. Post-test questions consists of 3 parts. First part is pairing section, which consists of 5 questions with score of 30. Second part is *maru batsu* section, which consists of 15 questions with score of 30. Third part is overlapping sentence consists of 4 questions with total score of 40. The total number of questions in the test was 34 with the total score of 100. Research data will be presented in the form of summary information which includes the amount, mean, mode, median, standard deviation and variance.

Pre-test and Post-Test Results

As shown in Table 1, based on the calculation of pre-test results, the average score was 32.04, while the lowest pre-test score was 10, and the highest score was 91. On the other hand, the post-test results' mean was 53.12, while the lowest post-test score was 10, and the highest score was 97. The value of standard deviation from pre-test was 22.832 and the post-test was 21.784.

Table 1: Data Descriptive Test.

No.	Description	Pretest	Postest
1	Minimum	10	10
2	Maximum	91	97
3	Mean	32,04	53,12
4	Std. Deviation	22,832	21,784

Pre-test and Post-test's Normality Test

Normality test is a test that is carried out with the aim of assessing the distribution of data in a group of data or variables, whether the distribution of the data is normally distributed or not. Normality test is useful for determining data that has been collected is normally distributed or taken from the normal population, as shown in Table 2.

Table 2: Normality Test.

No.		Tests of Normality		
		Shapiro-Wilk		
		Statistic	df	Sig.
1	Pretest	0,841	25	0,001
2	Postest	0,978	25	0,838

Based on the results using SPSS 25, it is known that the Shapiro Wilk significance value is 0.001 for the pre-test and 0.838 for the post-test. However, the sig value at pretest is smaller than 0.05, so it can be said that the variables are not normally distributed. Thus, the data to be analyzed is non-parametric data. The normality test used Shapiro Wilk because the number of students (respondents) was less than 100.

Hypothesis Test Result

The testing of hypothesis in this study was conducted using Mann Whitney U Test. The Mann Whitney Test is a non-parametric test used to determine the difference in the median of 2 independent groups if the dependent variable data scale is ordinal or interval / ratio but not normally distributed (sig value <0.05).

From normality test, it is known that the data collected in this study is non-parametric. Hence, Mann Whitney test was used to find out the significant difference of learning outcome, as shown in Table 3.

Table 3: Hypothesis Test.

No.	Statistic Tests	Result
1	Mann-Whitney U	139,500
2	Wilcoxon W	464,500
3	Z	-3,362
4	Asymp. Sig. (2-tailed)	0,001

As shown in Table 3, The proposed hypothesis is:
H0: There is no significant difference between the results of learning grammar before and after the application of PBL method in the virtual classroom
H1: There is a significant difference between the results of learning grammar before and after the application of PBL method in the virtual classroom.

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If H0> 0.005 then accept H0 and reject H1, and vice versa if H0 <0.005 then accept H1 and reject H0

Based on the Mann Whitney test table using SPSS 25, the sig value is 0.001. And because the value of sig = 0.001 <0.005, then reject H0 or accept H1. In other words, there is a significant difference between learning outcomes before and after the application of PBL method in the virtual classroom on grammar learning.

After tested using Mann Whitney, to analyze the percentage of learning outcome, Gain test was used as results shown in Table 4.

Normalized gain test is a test that is conducted to determine whether the treatment is effective or not. This test is carried out on the condition that the treatment is given only to one group pre-test post-test design (experimental design or pre-experimental design) or research using a control group (quasi experiment or true experiment). The normalized gain test is done by calculating the difference between the pre-test and post-test value. The difference between these values will show whether the treatment used is effective or not. The formula for the normalized gain test is as follows:

$$\text{NGain} = \frac{Postest\ Score - Pretst\ Score}{Ideal\ Score - Pretest\ Score}$$

Table 4: Normalized Gain Test.

No	Descriptives					
	Group				Stat.	Std. Error
1	NGain	Class 3A	Mean		17,7104	14,49541
2			95% Confidence Interval for Mean	Lower Bound	-12,2067	
3				Upper Bound	47,6274	
4			5% Trimmed Mean		28,3264	
5			Median		31,1111	
6			Variance		5252,926	
7			Std. Deviation		72,47707	
8			Minimum		-288,89	
9			Maximum		95,00	
10			Range		383,89	
11			Interquartile Range		33,03	
12			Skewness		-3,441	0,464
13			Kurtosis		14,076	0,902

As shown in Table 4, from the results of normalized gain testing, the gain value is 0.17 with percentage on improvement in learning outcomes by 17%. The modified Normalized Gain Interpretation is as in Table 5.

Table 5: Modified normalized Gain interpretation.

NO.	Normalized Gain Value	Interpretation
1	-100 - ≤ g < 0.00	Decreased
2	g = 0.00	Fixed
3	0.00 < g < 0.30	Low
4	0.30 ≤ g < 0.70	Moderate
5	0.70 ≤ g ≤ 1.00	High

As presented in Table 5, gain value of the results of this study can be interpreted as low. So it can be concluded that the PBL application in virtual classroom cannot improve the learning outcomes in learning Japanese grammar.

CONCLUSIONS

This study attempted to applied PBL method in virtual classroom in learning Japanese grammar. In applying PBL, students are required to be active both in groups and individually, in order to complete projects that have been determined by the lecturer. PBL applications is considered could enhance learners' collaboration and analytical skills. The application of PBL in this study aimed to improve students' learning outcomes in mastering Japanese grammar. However, the results of pre-test and post-test showed that after applying PBL method in virtual classroom, students' learning outcomes only increased by 17%. This means that the PBL method application in virtual classroom has not been able to improve Japanese grammar learning outcomes of Japanese language learners participated in this study.

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