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The Effectiveness of Using the Google Form Application on Completing Student Assignments with Project-Based Learning

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ABSTRACT: This study focuses on the needs of holistic and integrated 21st century learning to develop thinking skills in stages. The low achievement of Indonesian education, as shown by the results of the Program for International Student Assessment (PISA), confirms that only a few students have high-level thinking skills. This study aims to describe the effectiveness of using Google Forms based on Project-Based Learning (PjBL) in increasing student activity in making course assignments. The method used is a quasi-experimental design with a single group pre-test and post-test design. The results of the study indicate that the use of Google Forms based on PjBL is effective in increasing student activity and creativity in completing assignments. The implication of this study is that the use of digital media such as Google Forms can be a useful tool in supporting the learning process, especially in increasing activity and creativity in various courses.

Keywords: Google Forms, Project Basic Learning Effectiveness, Students, Education

INTRODUCTION

Learning in the 21st century is the development of multiple intelligences, which requires an integrated holistic learning system with the aim of students achieving their maximum potential (Hujjatusnaini et al., 2022). Learning is taught using: (1) a contextual approach, inviting students to independently discover knowledge (Canali, 2020). (2) Multidisciplinary and interdisciplinary learning is developed in collaboration between students (Natawidjaja, 2022). (3) Technological devices as media to facilitate each topic section (Poultsakis et al., 2021). (4) Project-Based Learning, where a project is required to produce a product as a result (Beckett & Slater, 2018). (5) Using higher order thinking (HOTS) through various tasks given (Ideris et al., 2019; Liu & Zhang, 2022). (6) Collaborative learning in each learning activity to understand concepts and complete assignments (Baser et al., 2017; Hussin, 2018). (7) With a problem solving orientation, all learning is designed to help familiarize problem solving (Hussin, 2018; Siagian et al., 2019). (8) Whereas assessment in 21st century learning takes place with authentic and transparent assessment (openness) for students (Care et al., 2018; Hartono et al., 2022).

The results of the Program for International Student Assessment (PISA) show that educational performance in Indonesia is only a small proportion of Indonesian students (average 7% OECD) at level 5 or level 6, students creatively and independently implement knowledge in various situations (Hartono et al. , 2022; Murtiyasa et al., 2018; Nugrahanto & Zuchdi, 2019). These results indicate that the ability to think at a high level or be creative in implementing knowledge is still very low. Creative thinking is one of the 21st century skills needed in problem solving, especially when using Google forms in giving assignments in each course (Agung et al., 2022; Monika et al., 2022). One way to increase activity in making assignments is to change the strategy from manual to using online learning media (Muhajir, 2022).

The integration of learning and multimedia technology can help foster creative thinking and acquire skills by enabling students to manage learning activities, collaborate and complete assignments (Bahri, 2017; Muhajir, 2022). Google form learning media is an online media product that is combined with a project-based learning model (PjBL) as a learning tool to support student activities in creating or doing assignments (Andy Hapsari & Djukri, 2021; Arwati, 2021). Google Forms Media is an application that allows users to easily and quickly create surveys, quizzes and online forms (Chaiyo & Nokham, 2017). This application has an innovative and user-friendly interface so that users can easily create forms that suit their needs. Google Forms allows users to easily create and submit surveys, quizzes and online forms (Carolina & Honny, 2021; Sianipar, 2019; Utami, 2021). This application is very useful for gathering information from many people, for example for market research, customer surveys or preparing interview schedules.

Using google forms media improves content visualization and user interaction and contributes to the development of digital skills (Anjani et al., 2021; Djafar et al., 2022). In addition, they can actively learn and use higher-order thinking skills, such as gathering information from many people, for example for research, customer surveys, or arranging interview schedules (Soloshych et al., 2021). The use of Google form media can stimulate students' cognitive contributions and have an active attitude, personal reflection, critical thinking, imagination, creativity and interactivity, forcing students to master and interact as well as be proficient with online media in completing assignments. (Djafar et al., 2022) found in his research that using Google form media can help students associate information, so that creative thinking skills (flexibility and original ideas) can increase.

The Google Form application is perfect for students and lecturers who often create online quizzes, forms and surveys. The Google Form feature can be shared with others openly or specifically for Google account owners with accessibility options, such as: read only or editable (can edit documents). Some of the functions of Google Form in education include: 1) Providing online practice/examination assignments via website pages, 2) Collecting other people's opinions via website pages, 3) Collecting various student/teacher data via website pages, 4) Making online forms school registration, 5) Distributing questionnaires to the community online (Batubara, 2016). This research is important because it aims to find out the use of Google Form which is very useful and helps in the process of implementing student learning evaluations.

Using Google Forms is a popular tool used in various fields to collect data and create online surveys. Some of the results of research using Google Forms include the effectiveness of using Google Forms in distance learning (Herlina, 2019), besides that Google Forms is effective in

collecting data for academic research and can be used as an alternative to paper surveys (Iqbal et al., 2018). then it can become a cost-effective and efficient data collection tool in research, especially for independent researchers or those who have a limited budget and as an evaluation tool in the context of learning in higher education and can help teachers to collect and analyze data related to student learning, but also convenient and efficient for data collection in educational research, and can help researchers manage and analyze data quickly and effectively. This study aims to fill the gap in the literature on the use of Google Forms in project-based learning (PjBL), especially in supporting students to complete assignments outside the classroom. Although Google Forms has been proven effective in distance learning and academic research, research related to its effectiveness in PjBL is still limited. The main focus of this study is to measure how effective Google Forms is in increasing student engagement, speeding up the process of completing assignments, and making it easier for teachers to monitor and analyze student performance. This study is expected to provide practical guidance for educators in utilizing educational technology optimally. Based on problem identification and relevant research, this study will focus on the effectiveness of using PjBL-based google forms on student activities when completing assignments outside the classroom.

METHOD

This study aims to find out how effective the use of PjBL-based google forms is in increasing student activity in completing assignments given by lecturers. This research uses mixed methods because this research is a test of the effectiveness of several PjBL-based Google Form product development studies. Pretest and posttest values are compared to find out whether there are differences in student activity scores before and after learning.

The population in this study were students of the Early Childhood Education study program (PAUD) and Nonformal Education Study Program (PLS) at the Muhammadiyah University of Kendari. The sampling technique was purposive sampling with a total sample of 36 PAUD students as the experimental group and 29 PLS students as the control group. Sampling follows the consideration of differences in the abilities of lecturers and students with scientific backgrounds. The instrument used in this study was the provision of test questions through the Google form application. These questions have been applied to the Google form in the form of student answers and assessment of student work. The data collection technique in this study involved two main tests: pre-test and post-test. The pre-test was conducted to measure students' initial ability in answering questions manually and through the Google Form application. This aims to determine the baseline of students' abilities before the implementation of project-based learning (PjBL) with Google Form. The post-test was conducted after the implementation of PjBL, aiming to assess the improvement of students' abilities in completing tasks using Google Form. Data analysis was carried out using an independent t-test to compare the difference in average pre-test and post-test scores, with a significance level of 0.05. If there is a significant difference, the N-Gain test is used to evaluate the effectiveness of using PjBL-based Google Form in improving student learning outcomes. All analyses were conducted using SPSS software to facilitate accurate data processing and interpretation.

Tabel 1; category effectivnees N-Gain

Category Interpretation of the effectiveness of N Gain	
Persentace %	Interpretation
< 40	Ineffective
40 – 55	Less effective
56 – 75	Effective enough
> 75	Effective

RESULT AND DISCUSSION

In using Google Forms, every lecturer and student must have an email account that comes from Google. Google provides free unpaid services to users in sending, receiving, managing information and documents. As a first step, lecturers and students visit the website https://www.google.com/forms/about/. Next, go to the site provided by Google Forms and select the template gallery that will be used. Inside there are various template options that can be adjusted to the assignment format that will be given to students. After the lecturer chooses a template, the lecturer makes the assignment identity in the template, such as the name of the course, the name of the lecturer, the collection/delivery deadline, the name and student name and a series of questions on the answer sheet

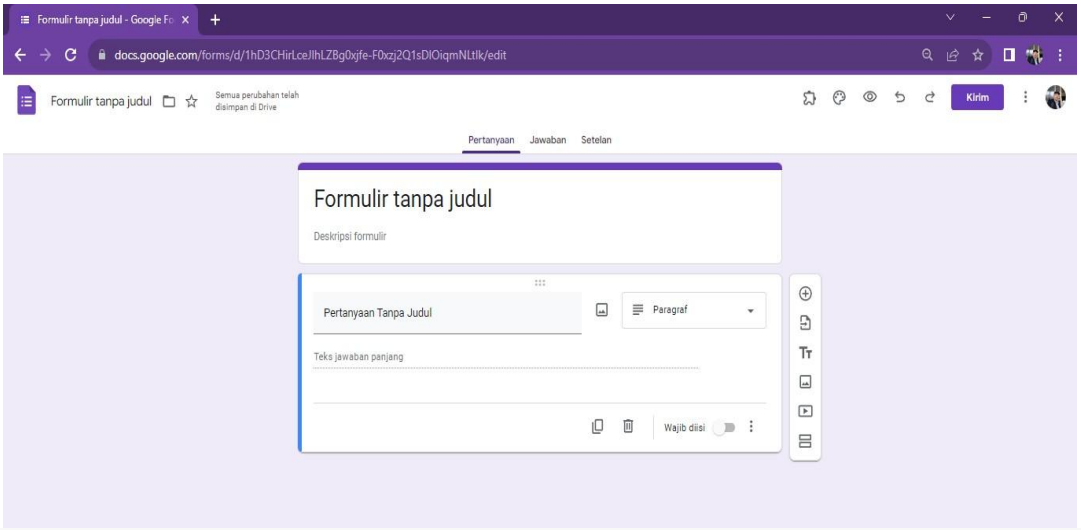

Figure 1. Example of the initial appearance of the Google Forms application

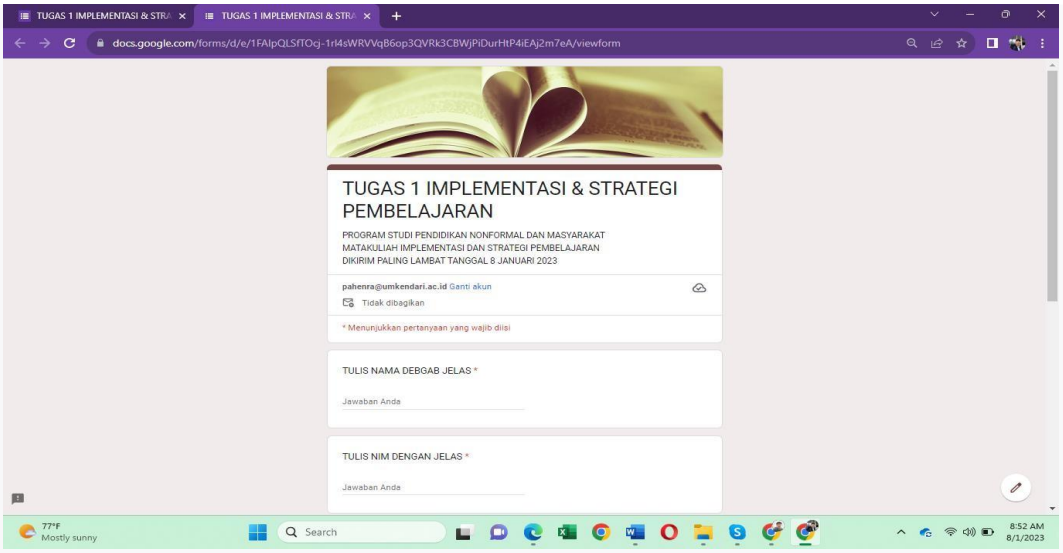

Figure 2. An example of a google form display that has been filled in

The results of the analysis in this study aim to determine the effectiveness of the PBL-based Google form application in improving student assignment completion results when working on teacher questions or assignments.

Table 2. Description of the results of the N-Gain statistics

	Kelompok			Statistic	Std. Error
NGain_percent	eksperimen	Mean		60.7910	2.29168
		95% Confidence Interval for Mean	Lower Bound	56.1387	
			Upper Bound	65.4434	
		5% Trimmed Mean		60.7557	
		Median		59.0054	
		Variance		189.065	
		Std. Deviation		13.75008	
		Minimum		36.36	
		Maximum		85.71	
		Range		49.35	
		Interquartile Range		23.91	
		Skewness		.263	.393
		Kurtosis		-.849	.768
	kontrol	Mean		46.0790	2.31377
		95% Confidence Interval for Mean	Lower Bound	41.3394	
			Upper Bound	50.8185	
		5% Trimmed Mean		45.9768	
		Median		44.4444	
		Variance		155.252	
		Std. Deviation		12.46001	
		Minimum		25.00	
		Maximum		68.75	
		Range		43.75	
		Interquartile Range		18.03	
		Skewness		.179	.434
		Kurtosis		-.715	.845

Based on the N-Gain percentage calculation in Table 2, the average value of the results of completing assignments using the experimental class, namely the use of the Google forms application in completing assignments with an average N-gain- value of 67.79. with a minimum average value of 36.65 and a maximum average value of 85.7 is included in the category effective enough. While the control class uses conventional or manual methods with an average N-Gain value of 46.07, with a minimum average value of 25.00 and a maximum average value of 68.75.

with these results it is included in the category less effective. From this data, it can be concluded that using the google application form is quite effective in increasing the completion of student assignments in the learning process, while conventional or manual methods are not effective in increasing the completion of student assignments in the learning process. In addition, to test the differences in using conventional or manual methods using the PjBL-based Google Form application using an independent sample t-test. but it must be known whether the data is homogeneous. as shown in the following table:

Table 3: Normality test results

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
NGain_percent	eksperimen	.132	36	.118	.956	36	.160
	kontrol	.082	29	.200*	.964	29	.412

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

From the table above, it can be seen that the Shapiro-Wilk significance value of each group is the experimental group of 0.16 or greater than t-table 0.05 and the control group of 0.41 or greater than t-table 0.05, so the data from the two groups are normally distributed. In addition, to find out whether the data is the same or homogeneous, an independent t-sample test is performed, as shown in the following table;

Table 4: Results of independent sample testing

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
NGain_percent	Equal variances assumed	.289	.592	4.469	63	.000	14.71208	3.29175	8.13404	21.29012
	Equal variances not assumed			4.518	62.084	.000	14.71208	3.25658	8.20244	21.22171

Based on the results of the independent t-sample test, it shows the N-gain significance value on the assumed equal variances of 0.592 compared to the t-table value of 0.05 or 0.592 > 0.05 using conventional or manual methods. the same or homogeneous.

Furthermore, to find out the differences in effectiveness between the experimental group using the Google form and the control class using conventional or manual methods for completing assignments in the PjBL-based learning process. From the results of the independent t-sample test, it is known that the sig. (two-tailed) results in Table 3 above show a value of 0.01 compared to the t-table value of 0.05, it is known that the result is 0, 01 < 0.05. With these results, it can be concluded that there is a significant difference in effectiveness between the experimental class, i.e. using the Google forms application, and the control class using conventional or manual methods on the increase of assignment completion in the learning process.

Through independent t-samples in this study, it was found that there were differences in the mean results of the experimental group and the control group, as well as the effect of using the PjBL-based Google Form application in improving the results of completing student assignments in learning in early childhood education and extracurricular education programs. It was proven in this study by increasing student assignment completion results through the average N-Gain percentage score between the experimental group with an N-Gain value of 67.79 and the post-test with a fairly effective category compared to . The percent N-Gain score for the control class was 46.07 in the less effective category

While using the PjBL-based google form application, students were found to be more active and enthusiastic in completing projects. Consistent with the results of research (Herlina, 2019), the development and use of google forms has a positive impact on learning, especially in completing assignments, including learning focused on student activity, increasing learning interest and student motivation is increased, so that learning is more effective (Anjani et al., 2021; Djafar et al., 2022; Iqbal et al., 2018; Jonata, 2022). Meanwhile, the same explained by (Krisdayanti, 2021) shows that using Google forms in learning positively impacts aspects of students' activity in managing learning, facilitating learning situations and helping students save time in collecting do assignments and do not need paper assignments. . In fact, (Asqia & Nabarian, 2021) found that learning through the use of google forms makes students more active and effective in performing their activities.

Google Forms can be especially useful when creating assignments for courses because it allows teachers to easily and efficiently create quizzes, surveys, or other forms. Google Forms makes it easy for teachers to collect student data in a structured format. This makes it easier for teachers to test students' understanding of subject matter and assess their performance. In addition, it can increase efficiency in managing assignments and grading students. (Akbar Iskandar, 2020), explains how the Google Form application works. Processing visual information helps students activate relevant prior knowledge and integrate it with new information and then store it back in long-term memory.

Google Forms provide an auditory and visual learning experience, where students use both sensory skills at the same time. The use of Google forms ensures that students really enjoy, do not get bored, and increases effectiveness so that learning is meaningful (Jonata, 2022). Meaningful learning is realized depending on how students understand different knowledge through favorable learning situations and increasing visualization and user interaction in learning about technology application concept. According to the explanation (Wahyuni, 2020), meaningful learning depends on student engagement during learning, including selecting, organizing and information integration.

Google Forms Customization allows students to customize forms to suit their needs. As you learn, you can add questions or answer choices based on the topic being studied. The existence of PjBL-based Google Form projects and applications can help improve social interaction between groups of students and teachers to sharpen thinking skills while completing assignments and finding new things while completing a project. The PjBL (Project Based-Learning) based Google Form application that has been developed can increase engagement and collaboration between projects. (Anjani et al., 2021; Asqia & Nabarian, 2021; Charolina & Honny, 2021; Djafar et al., 2022; Sianipar, 2019), found that the ability to complete tasks in the form of the Google forms

application can be developed through the application of project-based learning. Research (Arwati, 2021; Asqia & Nabarian, 2021) has shown that the use of project-based learning can increase student activity.

Google Forms provide analytics features that make it quick and easy for educators to analyze data. Teachers can view student responses in graphical or tabular format and use that information to make better decisions as they learn. Thus, using google forms in completing tasks while learning can bring significant benefits to teachers and students.

CONCLUSION

The results of the study show that the PBL-based google form application is quite effective in improving learning assignments, while conventional methods are less effective. Therefore, using the Google Form application in completing student assignments is better than the manual or conventional method. Various research results analyzed prove that using the google form application is very helpful in completing learning assignments as it allows teachers to easily and efficiently create quizzes, surveys or other forms. from the point of view of the application of the media and the process of its application in the completion of tasks must be performed optimally continuously. As a recommendation, teachers are advised to integrate Google Form into every stage of project-based learning to improve the effectiveness of learning. In addition, teacher training related to the use of this technology needs to be strengthened so that its application is more optimal. Further research is also needed to explore this application in other contexts, such as the development of students' collaborative and critical thinking skills.

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