



# Teacher Skills in Developing Project Based Learning (PjBL) Learning Tools in Elementary Schools

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## ABSTRAK

Rendahnya keterampilan guru dalam menyusun perangkat pembelajaran disebabkan karena guru kurang mampu dalam menyusun perangkat pembelajaran inovatif. Penelitian ini bertujuan untuk menganalisis keterampilan guru dalam menyusun perangkat pembelajaran dan kendala guru dalam menyusun perangkat pembelajaran Project Based Learning (PjBL). Jenis penelitian yang digunakan adalah deskriptif kuantitatif. Populasi dalam penelitian ini sebanyak 15 guru yang tersebar di sekolah dasar yang terdiri dari 7 guru kelas I dan 8 guru kelas IV. Penelitian ini menggunakan teknik cluster sampling. Metode pengumpulan data yang digunakan adalah observasi dan penyebaran kuesioner. Sedangkan instrumen pengumpulan data yang digunakan dalam penelitian ini adalah rating scale dan kuesioner. Uji validitas isi instrumen menggunakan rumus Gregory. Hasil uji validitas isi instrumen yaitu sebesar 1,00 sehingga memperoleh tingkat validitas sangat tinggi. Hasil penelitian ini menunjukkan bahwa keterampilan guru dalam menyusun perangkat pembelajaran Project Based Learning (PjBL) berada pada kategori rendah dan kendala guru dalam menyusun perangkat pembelajaran Project Based Learning (PjBL) berada pada kategori tinggi. Pemetaan kompetensi guru untuk menyusun perangkat pembelajaran PjBL di setiap sekolah sangat penting dilakukan agar tergambar kualitas guru dalam menyusun perangkat pembelajaran PjBL.

## ABSTRACT

The low skill of teachers in compiling learning tools is caused by teachers are less capable in preparing innovative learning tools. This research aims to analyze teacher skills in compiling learning tools and teachers' obstacles in compiling Project Based Learning (PjBL) learning tools. The type of research used is quantitative descriptive. The population in this study was 15 teachers spread across elementary schools consisting of 7 class I teachers and 8 class IV teachers. This research uses a cluster sampling technique. The data collection methods used were observation and distributing questionnaires. Meanwhile, the data collection instruments used in this research were rating scales and questionnaires. Test the content validity of the instrument using the Gregory formula. The results of the instrument content validity test were 1.00, thus obtaining a very high level of validity. The results of this research indicate that teachers' skills in compiling Project Based Learning (PjBL) learning tools are in the low category and teachers' obstacles in compiling Project Based Learning (PjBL) learning tools are in the high category. Mapping teacher competency to develop PjBL learning tools in each school is very important to illustrate the quality of teachers in compiling PjBL learning tools.

## 1. INTRODUCTION

Learning tools play an important role in the implementation of teaching and learning activities. Learning tools are a collection of learning resources that educators and students use in learning activities (Musyadad et al., 2022; Suyamto et al., 2020). Types of learning tools in the form of syllabus, lesson plans, teaching materials or modules, 4) student worksheets, learning media, and assessment instruments (Ferdianto et al., 2019; Harjono et al., 2019). This learning tool functions as a teacher's guide in carrying out the learning process, and as a benchmark for teacher success in learning (Mawardi, 2019; Susanto et al., 2022). To compile it, teacher skills are needed to produce quality learning tools. Teacher skills are basically a set of skills or abilities possessed by teachers in carrying out learning activities and managing classroom conditions with the aim of making the teaching and learning process enjoyable (Pamela et al., 2019;

Widyastuti & Sakti, 2022). The skills possessed by teachers can be in the form of skills in training students' abilities, skills to be a guide in learning, as well as having skills in compiling learning tools (Sa'dijah & Agusta, 2021; Wati & Alhudawi, 2023). Teacher skills are really needed in the process of preparing learning tools, this is because learning tools are one of the basic assets for the success of the learning process (Angraini et al., 2021; Saragih et al., 2021).

However, the reality on the ground shows that teachers' skills in compiling learning tools still need to be improved. This is based on the results of observations and interviews conducted in Cluster VIII, Buleleng District. The results of observations and interviews show that teachers are less capable in developing innovative learning tools. For example, teachers do not use creative learning media, teachers do not provide LKPD during learning, the teaching materials used are still guided by books, and the models used are still teacher-centered. Moreover, Project Based Learning (PjBL) is currently being encouraged, especially schools that implement an independent curriculum, so skills in compiling PjBL learning tools are very necessary. However, preparing PjBL learning tools is still a problem for teachers. However, research data regarding teachers' skills in compiling PjBL learning tools has not been found. The PjBL learning model is a learning model that focuses on implementing projects to provide understanding to students (Latifah et al., 2020; Zaeriyah, 2022). A learning process that emphasizes project implementation will be able to help students think critically and creatively in order to develop their existing abilities (Epifania et al., 2020; Fitri et al., 2018). The lack of teacher ability in preparing PjBL-based learning tools will of course have an impact on less than optimal class management, class supervision that does not run optimally, and students not being active in the learning process (Dewi, 2021; Nafisa et al., 2021).

Several studies that have been conducted previously revealed that teachers' skills in compiling learning tools are low, and the number of teachers who compose learning tools before teaching is still not optimal, namely 60%, which has an impact on the difficulty of school principals in evaluating teacher performance in implementing learning (Hamid, 2017; Sari et al., 2020). Furthermore, the research results stated that the low skills of teachers in compiling learning tools caused teachers' skills in preparing lessons to be not optimal (Amalia, 2019; Johannes, 2018). The results of the research state that the lack of teacher skills in compiling learning tools can result in less than optimal teaching and learning processes in schools (Nurudin, 2021; Yuliana et al., 2022). The results of other research reveal that the low skills of teachers in compiling learning tools are caused by various factors such as teachers having difficulty determining the learning implementation plan (RPP), the level of validity of the LKPD, and learning evaluation (Amrina et al., 2022; Kurnia et al., 2021). Based on several research results, it can be said that teachers' skills in compiling learning tools still need to be improved. It's just that in previous research, there have been no studies that specifically discuss teacher skills in preparing project based learning (PjBL) learning tools in elementary schools. So, this research focuses on this study with the aim of analyzing teachers' skills in compiling learning tools and teachers' obstacles in compiling Project Based Learning (PjBL) learning tools

## 2. METHOD

This research is classified as a descriptive research type, with a quantitative approach. Quantitative descriptive research is research conducted to explore phenomena or problems with the aim of obtaining data without manipulation or other treatment (Ningsih & Emirawati, 2022). The population in this study were teachers at SD N Gugus VIII, Buleleng District, with a total of 7 class I teachers and 8 class IV teachers. Sampling in this research used cluster sampling, namely a technique of randomizing groups, not individual subjects (Sihotang & Febriyanti, 2020). The samples in this study were the class I teacher cluster and the class IV teacher cluster at SD N Gugus VIII. The sample for this research was 15 teachers taken from 7 elementary schools in Gugus VIII Buleleng District. This research uses data collection techniques using observation and questionnaire methods. The observations used in this research are quantitative observations. Furthermore, a questionnaire is a method of collecting data which is carried out by giving several written questions to respondents to be answered or responded to in writing according to the user's request (Aditya & Jaya, 2022).

The data collection instruments in this research are rating scale instruments and questionnaires. The rating scale instrument is used to assess learning planning, while the questionnaire is used to determine the obstacles faced by teachers in preparing PjBL learning tools. For the validity of the content of this instrument, the researcher used a validity test using the Gregory formula. This research uses descriptive analysis techniques in the form of means and percentages. The instrument grid and difficulty level criteria in this study in Tables 1, 2, and 3.

**Table 1. Rating Scale Instrument Grid**

No.	Observed Aspects	Item number Colum	Score
1	Teacher skills in finding phenomena or events for basic questions	1	4
2	Teacher skills in arranging learning steps according to the PjBL phase	2	4
3	Teacher skills in planning student performance assessments in accordance with learning objectives and PjBL (performance and product assessment instruments, as well as rubrics)	3	4

**Table 2. Questionnaire/Questionnaire Grid**

No.	Dimensions	Indicator	Statement		Number of Items	Item Number
			+	-		
1	Obstacles in choosing and determining basic questions	Teachers' difficulties in selecting and determining problems or phenomena in real life	3,5	1	3	1,3,5
2	Obstacles in preparing PjBL learning activities	Teachers have difficulty arranging learning steps according to the PjBL phase	6	2,4,8	4	2,4,6,8
3	Obstacles in planning performance in accordance with learning objectives and PjBL	Teachers' difficulties in planning student performance assessments that are in accordance with learning objectives and PjBL (performance and product assessment instruments, as well as rubrics)	7	9,10	3	7,9,10
<b>Amount</b>						<b>10</b>

**Table 3. Difficulty Level Criteria**

Degree of difficulty	Criteria
80 % - 100 %	Very High (ST)
60 % - 80%	Height (T)
40 % - 60 %	Medium (S)
20 % - 40 %	Low (R)
0 % - 20 %	Very Low (SR)

### 3. RESULT AND DISCUSSION

#### Result

This research obtained results in accordance with the research objectives of teacher skills in compiling PjBL learning tools and teachers' obstacles in compiling PjBL learning tools. The results of the research analysis can be seen at [Table 4](#).

**Table 4. Results of Data Analysis on Teacher Skills in Preparing PjBL Learning Tools**

No.	Aspects of Teacher Skills in Developing PjBL Learning Tools	Average (M)	Percentage %	Category
1	Teacher Skills to find phenomena for basic questions	1.06	26.7%	Low
2	Teacher skills in arranging learning steps according to the PjBL phase	0.86	21.7%	Low
3	Teacher skills in planning student performance assessments in accordance with learning objectives and PjBL (performance and product assessment instruments, as well as rubrics)	0.6	15%	Very low
<b>Average Percentage</b>			<b>21.1%</b>	<b>Low</b>

Based on the calculation results, an average result of 21.1% was obtained. This shows that in general teachers' skills in compiling PjBL learning tools are in the low category. The results of data analysis show that in aspect 1 regarding teacher finding skills or events for basic questions is in the low category,

with an average of 26.7%. Furthermore, aspect 2 regarding teacher skills in compiling learning steps according to the PjBL phase is in the low category, with an average of 21.7%. Furthermore, the aspect regarding teacher skills in planning student performance assessments in accordance with learning objectives and PjBL (performance and product assessment instruments, as well as rubrics), is in the very low category, with an average of 15.0%. The results of the next analysis are regarding the analysis of teachers' obstacles in compiling PjBL learning tools. The results of this analysis in [Table 5](#).

**Table 5.**Results of the Teacher Obstacles Questionnaire in Developing PjBL Learning Tools

No.	Dimensions	Indicator	Average (M)	Percentage	Category
1	Teachers' obstacles in choosing and determining basic questions	Teachers' difficulties in selecting and determining problems or phenomena in real life	0.19	64%	Tall
2	Obstacles in arranging learning activities	The teacher's difficulty in arranging learning steps according to the PjBL phase	0.24	60.3%	Tall
3	Obstacles in planning performance assessment in accordance with learning objectives and PjBL	Teachers' difficulties in planning student performance assessments in accordance with PjBL learning objectives (performance and product assessment instruments, as well as rubrics)	0.17	60%	Tall

The data in the table shows that teachers' obstacles in selecting and determining basic questions are in the "high" category with a percentage of 64%. This means that in general the teacher's biggest obstacle in compiling PjBL learning tools lies in the teacher's ability to select and determine basic questions. If viewed from each dimension, the results of calculating teacher constraints in compiling PjBL learning tools. Based on the results of data analysis, dimension 1 regarding teacher obstacles in selecting and determining basic questions is in the high category, with an average of 64%. Furthermore, in dimension 2 regarding teacher obstacles in arranging learning activities, it is in the high category, with an average of 60.3%. Furthermore, in dimension 3 regarding obstacles in planning performance assessments that are in accordance with learning objectives and PjBL are in the high category, with an average of 60%.

**Discussion**

Based on the results of research conducted at SD N Gugus VIII, Buleleng District, it shows that teachers' skills in compiling PjBL learning tools are in the low category with an average percentage of 21.1%. The highest obstacle, namely teacher obstacles in selecting and determining basic questions, is in the high category with an average percentage of 64%. The low skill of teachers in compiling PjBL learning tools is because only 4 teachers have compiled PjBL teaching modules and 11 other teachers do not have PjBL teaching modules. The low skill of teachers in compiling PjBL teaching modules is caused by various reasons. First, the majority of teachers have not mastered and are still groping in compiling PjBL teaching modules because teachers are still following the training period in compiling PjBL teaching modules. The training may not be accompanied by assistance, but the training provided is only in the form of material or seminars and without any assistance in making PjBL teaching modules ([Herlinudinkhaji et al., 2022](#); [Mujahidin, 2021](#)).The reason teachers have to take part in various training is to deepen their knowledge about a competency ([Ardianti & Amalia, 2022](#); [Riastini, 2021](#)).Training is a method used to develop human resources related to the abilities or skills of those who occupy a position or job ([Apriliansa & Nawangsari, 2021](#); [Sulaiman, 2020](#)).With training, it is hoped that everyone can improve their skills and expertise ([Bariqi, 2020](#); [Haryati et al., 2022](#)). The reason teachers have to take part in various training is to deepen their knowledge about a competency ([Ardianti & Amalia, 2022](#); [Riastini, 2021](#)).

Second,teachers have not been able to compose teaching modules independently and are still looking for sources on the independent learning platform as a reference or guide in compiling PjBL teaching modules. This results in teachers not being trained in creating PjBL teaching modules. This is in line with research results which state that teachers are less capable in preparing learning implementation plans because the preparation of lesson plans is not done independently, but uses other sources ([Ermavianti, 2020](#); [Ningsih, 2023](#)).Third, the lack of experience possessed by teachers in compiling PjBL teaching modules. This results in a lack of teacher knowledge or insight in compiling teaching modules. This is in line

with research results which state that experience is very important for a teacher, especially in compiling PjBL teaching modules so that they can produce quality teaching modules (Sa'dijah & Agusta, 2021; Wati & Alhudawi, 2023). The less experience they have, the more the teacher's ability to develop quality and innovative teaching modules decreases. This means that experience has a significant relationship with the teacher's ability to prepare teaching modules. Creating good experience will encourage teachers to carry out their duties to achieve the school goals that have been set (Angraini et al., 2021; Saragih et al., 2021).

Fourth, lack of teacher creativity and innovation in compiling PjBL teaching modules. This results in the resulting teaching modules not being varied and seeming monotonous so that students feel bored or fed up with learning. Creativity is the ability a person has to create new ideas that can be applied in solving problems. Therefore, creativity is important for teachers in creating new ideas or ideas for compiling PjBL teaching modules (Latifah et al., 2020; Zaeriyah, 2022). This is in line with research results which state that creativity and innovation are very important for a teacher because if there is creativity and innovation in compiling PjBL teaching modules, the resulting teaching modules will be better and more varied (Abbas & Syaifullah, 2023; Zakiah et al., 2020). Fifth, teachers have limited time in compiling PjBL teaching modules. This can happen because teachers find it difficult to manage time in creating teaching modules. This is in line with research results which state that teachers' teaching time is quite busy, resulting in teachers being hampered in compiling PjBL teaching modules, besides that teachers cannot find additional hours because of the administrative tasks they have to do (Mardini, 2023; Riastini, 2021).

Teachers' obstacles in selecting and determining basic questions can occur due to teachers' lack of knowledge about relevant digital platforms and tools. This is in line with research results which state that it is important for teachers to master digital tools in order to become professional teachers (Ananda & Fauziah, 2022; Sumenda et al., 2022). Furthermore, the teacher's problem in preparing PjBL learning activities, this occurs due to a lack of understanding of the concept of teachers planning PjBL learning activities. This is in line with research results which state that planning learning activities is very important for teachers so that learning becomes more effective and efficient (Meishanti & Fitri, 2022; Surya et al., 2018). Furthermore, there are obstacles in planning performance in accordance with learning objectives and PjBL. These obstacles can occur because of teachers' difficulties in determining performance assessment criteria and projects that are in accordance with learning objectives and PjBL approaches. This is in line with research results which state that the majority of teachers experience difficulties and face challenges when determining criteria in performance assessment in accordance with PjBL learning (Epifania et al., 2020; Winangun, 2021).

Based on these results, it can be said that the teacher's ability to prepare teaching tools is still in the low category. So the implication in this research is that it is very important to map teacher competencies to develop PjBL learning tools in each school so that the quality of teachers in compiling PjBL learning tools can be seen. The results of this research still have limitations. The first limitation is that data collection only takes the form of questionnaires and rating scales. Apart from that, the scope of this research only focuses on one elementary school cluster in Buleleng District. It is hoped that future research can use shared data collection techniques, and the scope of research can be expanded more widely.

#### 4. CONCLUSION

Based on the results and discussion, it can be concluded that the teacher's skills in compiling Project Based Learning (PjBL) learning tools are in the low category, while the teacher's obstacles in compiling PjBL learning tools are in the high category. It can be concluded that in general the biggest obstacle for teachers in preparing PjBL learning tools lies in the teacher's ability to choose and determine basic questions. Based on the results of data analysis, dimension 1 regarding teacher obstacles in selecting and determining basic questions is in the high category. In dimension 2 regarding teacher constraints in arranging learning activities, it is in the high category. In dimension 3 regarding obstacles in planning performance assessment in accordance with learning objectives and PjBL is in the high category.

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