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GARBAGE FOR PROJECT BASED LEARNING MEDIA TO FORM PANCASILA STUDENT PROFILES IN MADRASAH IBTIDAIYAH

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Abstract
Garbage disrupted the sustainability of nature and human health, so it needs to be addressed by recycling garbage into learning media. This study aims to find the steps of Project Based Learning (PjBL) model using garbage, as well as to test its influence on the formation of Pancasila Student Profile in Madrasah Ibtidaiyah. The study uses a quantitative approach of True Experiment type. The population and sample of this study were students of Madrasah Ibtidaiyah in Tuntang District, Semarang Regency. Data collection using questionnaire, interview, observation methods. Data analysis using the Shapiro Wilk formula, F-test, t-test, and Gainscore. The results of the study found nine steps in PjBL model by garbage, namely; 1) student conditioning; 2) delivery of learning objectives; 3) asking essential questions; 4) project explanation; 5) making and monitoring project; 6) presentation of results; 7) reflection; 8) drawing conclusions; 9) evaluation. This study also proves that Project Based Learning model has a significant influence on the formation of Pancasila Student Profile and can increase the formation of Pancasila Student Profile character by 17.4%. Theoretically, the results of this study have contributed to developing the PjBL learning model, both in terms of developing steps and learning media.
Keywords: Project Based Learning; Garbage; Pancasila Student Profile

INTRODUCTION

Garbage as waste or objects that are no longer used (Faishol et al., 2021:93), is one of the serious problems that occur in the surrounding environment (Dadang Haryanto, 2019). Scattered garbage can interfere with health, and the smell can cause air pollution (Abidin et al., 2022:202). Therefore, garbage needs to be processed to be more useful.

One way to utilize garbage is to use it as a learning medium. The use of garbage as learning media can increase students' environmental awareness by reducing garbage in their environment (Humairah et al., 2021: 12). The PjBL model is in accordance with the subject matter or problems that occur around them, currently the country is still having difficulty in overcoming environmental problems, so PjBL can be developed by utilizing garbage, to reduce garbage (Apriana & Hudri, 2021: 31).

According to KBBI, garbage are defined as waste from household activities or factory waste that can no longer be used. Meanwhile, according to Faishol, garbage are waste or objects that are no longer used (Faishol, 2021 : 93). Garbage

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can be newspapers, plastic bottles, cardboard, and pipettes/straws (Agustina et al., (2019: 28).

Moral problems that occur among students such as violence against children and adolescents, low levels of honesty, declining ethics in attitudes, lack of ethics in using polite language and Pancasila values are almost eroded by a luxurious lifestyle and hedonism (Dasmana., 2022: 362). To answer these problems, education is needed that can form a Pancasila student profile (Juliani & Bastian, 2021). The formation of the Pancasila Student Profile aims to create students who are obedient to God Almighty, have a diversity attitude, and are predicted to be one of the alternatives for strengthening character in order to prepare the golden generation in 2045 (Safitri et al., 2022:7048). The Pancasila Student Profile as a symbol of Indonesian students who have culture, character and have Pancasila values (Novera et al., 2021).

Based on the Regulation of the Minister of Education and Culture Number 22 of 2020, the Profile of Pancasila Students is Indonesian students, as lifelong learners who are generally competent and behave in a way that reflects the noble values of Pancasila (Kahfi, 2022: 145). The profile of Pancasila students has six main characteristics, namely: 1) faithful, devoted to God Almighty, and virtuous; 2) global diversity; 3) mutual cooperation; 4) independent; 5) critical thinking; and 6) creative (Sulastri et al., 2022: 418).

Based on the results of preliminary research through observations and interviews at the Ma'arif Sraten Madrasah Ibtidaiyah (MI)/ Elementary School, Salatiga City, it was found that the implementation of character education was not optimal. This is based on the results of interviews with teachers X, Y, and Z who stated that there are still students who often do not obey school rules, lack politeness towards teachers and friends, lack tolerance, are lazy, and do not care about the surrounding environment. The results of the interviews with the teachers were supported by the results of observations by the researcher on November 12, 2022, namely, during school breaks, the researcher saw two children fighting in the school yard because they were teased by their friends. When the researcher interviewed teacher X, he answered that this was commonplace, almost every day there were several children fighting and crying. They threw harsh words at each other, which were not appropriate for their age. The researcher also saw a child who was cleaning up a pencil case that had fallen in the classroom, while in front of him were his friends who were just watching. This indicates a lack of concern and mutual cooperation towards others which is not in accordance with the character of the Pancasila Student Profile.

Based on the results of the interview with teacher Y, if the above problems are not resolved immediately, it can hinder the formation of student character. The results of this interview are reinforced by the opinion of Harefa & Tabrani who stated that if moral issues are not resolved, it will result in a decline in all aspects of life, both in terms of economy, politics, social, culture, and defense (Harefa & Tabrani, 2021: 150). Based on the interview with teacher Z, to overcome moral problems, it is necessary to develop student character through education that can form the Pancasila Student Profile. Pancasila students are able to develop and creating

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something original, meaningful and impactful (Sufyadi, S et al., 2021; Direktorat Sekolah Dasar, 2020).

Several opinions suggest that the formation of the Pancasila Student Profile can be implemented through the Project-based Learning (PjBL) model. The reason is, the PjBL model trains students to have a spirit of helping each other, having an independent attitude, critical thinking, creative thinking, students work together and exchange opinions, and encourage students to have empathy (Rehani & Mustofa, 2023); Mudlofir & Rusydiyah, 2017); one of the teaching and learning activity models that is aimed at students to train the spirit of mutual cooperation, independence, critical thinking, creativity and collaboration of Pancasila students (E. D. S. Eliana et al., 2016); (Mayuni dkk., 2019); can develop students' imagination and curiosity (Almuzhir, 2022); can develop skills and knowledge through various forms of representation (Daryanto, 2014: 23); Wahyuni, 2019); is a learning tool to achieve competency in attitudes, knowledge, and skills (Hosnan dalam Nurjanah & Esa, 2019; Chounta, I. A., Manske, S., & Hoppe, 2017); a learning strategy that can improve student competency both cognitively, affectively and psychomotorically (Damayanti, 2023); students have an active role in completing projects whose final results are presented (Sutrisna et al., 2020). From several opinions, it can be concluded that PjBL learning models can help shape students' personalities who behave well, help each other and collaborate, are independent, critical, creative and can develop knowledge and skills that are in accordance with the values of the Pancasila student profile.

The PjBL model is project-based learning where students are trained to focus on creative thinking, solving problems, interacting with their peers to increase and use their knowledge (Indrawan & Jalinus, 2019). PjBL is a learning model that uses project assignments to improve problem-solving skills and increase collaboration in group work, where students explore, evaluate, interpret, synthesize, and provide information to produce various forms of learning outcomes (Daryanto, 2014; Saputro & Rayahu, 2020). PjBL has learning characteristics that aim to develop students' way of thinking so that they have creativity, skills, and motivation to collaborate with each other (Dwiantoro & Basuki, 2021; Indriyani, P. A., & Wrahatno, 2019). PjBL has the following characteristics: (a) all decisions and frameworks are made by students, (b) in learning there are problems that have not yet been resolved, (c) students are in control of sthe process of creating results, (d) obtaining and managing the information collected is the responsibility of students, (e) making continuous improvements, (f) the results are in the form of products and (h) a pleasant and tolerant classroom atmosphere (Indrawan & Jalinus, 2019).

The PjBL model has several advantages, including students are free to learn and develop according to real conditions, students participate in finding information and applying their knowledge to solve problems, and creating an atmosphere that is not boring (Sunita et al., 2019); can increase learning motivation (Relmasira et al., 2019); can increase skills and creativity and character of students as well as in the ability speaking to a sense of responsibility (Dewi, 2022). his shows that the advantages of the PjBL learning model include students making the learning

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process more meaningful, not stressed and not boring, and being able to play an active role in solving problems according to real life.

In addition to having advantages, PjBL also has disadvantages, including requiring skilled and knowledgeable teachers, requiring adequate facilities and equipment, and sometimes students have difficulty in group work (Sunita et al., 2019:132); increasing the teacher's workload, requiring longer learning time, can hinder the completion of individual tasks, for students who are not active they will lose their self-confidence (Dewi, 2022: 222). Based on several opinions, it can be concluded that the disadvantages of the PjBL method are time effectiveness, costs, anxiety/possibility of negative things happening in the learning process.

Novelty.This study is intended to strengthen the PjBL model and the use of garbage that have been carried out by previous researchers, including research by Gianistika, (2022), Nurhadiyati et al., 2020:), Srirahmawati (2022), and research by Mayasari et al.(2021)

METHODS

Approaches and Types

This research uses a quantitative approach with a true experiment research type.

Design and Procedure

The research design uses the Pretest-Posttest Control Group Design, where the research begins with a pretest and ends with a posttest. test to experimental class and control class.The research design can be seen in Figure 1.1 below.

Experiment	:	O1 pre-test	X	O2 post-test
Control	:	O3 pre-test		O4 post-test

Information:

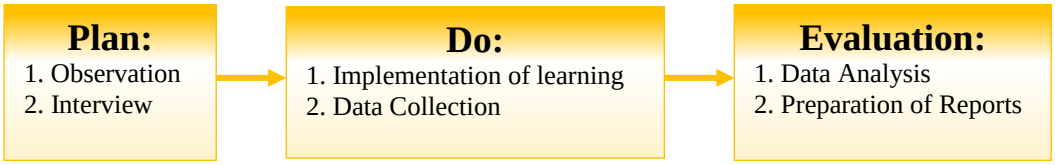
X : Treatment
O1 : Pretest before treatment in Experiment class
O2 : Posttest after treatment in Experiment class
O3 : Pretest before treatment in Control class
O4 : Posttest after treatment in Control class

Based on the research design above, this research was conducted with the PDE (Plan, Do, Evaluation) procedure. The research procedure activities can be seen in Figure 1.2 below.

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Figure 1. 2. Research Procedure



Population and Sample

The population in this study was 270 students consisting of 100 students of MI Ma'arif Sraten, Tuntang, Semarang Regency and 170 students of MI Ma'arif Gedangan, Tuntang, Semarang Regency. Then the research sample was determined by purposive sampling technique. Based on this technique, a sample of 33 students was selected with details of class V MI Ma'arif Sraten, Tuntang, Semarang Regency as many as 17 students as the experimental class and class VB at MI Ma'arif Gedangan, Tuntang, Semarang Regency as many as 16 students as the control class.

Data Collection Methods and Instruments

Interview

The interview method is a conversation that leads to the search for information about a person, feelings, motivations, events, organizations, and confessions and others. Interviews conducted by researchers during preliminary research aim to find problems, find the causes of the problems and solutions to the problems. The interview method uses an interview guideline instrument that is compiled based on the grid as in the table below.

Table 1.1 Interview guideline grid

Number	Indicator	Number of Questions
1	Finding problems	7
2	Solution to problem	3
Amount		**10**

Observation

The observation method is the collection of field evidence in the form of text or non- text in an empirical scientific way through the five senses without any cheating or manipulation (Hasanah, 2016: 26). Observations are carried out for preliminary research with the reason to find out the initial conditions in the field regarding the values contained in the phenomena related to the character of the Pancasila Student Profile. The observation method uses an observation guideline instrument that is arranged based on the grid as in the table below.

Table 1.2 Preliminary observation grid

Number	Indicator	Number of items
1	School environment	9

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2	Discipline	6
3	Social Relations	6
	Amount	**21**

Questionnaire

The questionnaire method is a data collection method where researchers provide sheets containing questions or statements to be filled in by respondents (Prawiyogi et al., 2021). The questionnaire method is used to obtain data related to the profile of Pancasila students. The questionnaire method uses a questionnaire instrument that is arranged based on the grid as in the table below.

Table 1. 3 Pancasila Student Questionnaire Grid

Number	Indicator	Number of grains	Item Number
1	Students believe and are devoted to God Almighty	2	1- 2
2	Students with noble character	8	3- 10
3	Students have an awareness of global diversity	3	11- 13
4	Students uphold the noble values of mutual cooperation	4	14- 17
5	Independent learners	4	18- 21
6	Students have critical thinking	5	22- 26
7	Creative students	4	27- 30
	Amount	**30**	

Then, to find out the quality of the questionnaire, a validity and reliability test was conducted. Based on the results of the program analysis SPSS Statistics 22 then the validity results are obtained as in the table below.

Table 1.4 Questionnaire Validity Results

Number	Validity Level of the Questionnaire	Number of grains	Item Number
1	Valid	24	1,2,3,4,6,7,8,9,11,12,13,14,17,18,19, 20,21,22,23,24,27,28,29,30
2	Invalid	6	5, 10, 15, 16, 25, 26
	Amount	**30**	**30**

Based on the results of the validity test above, the items that were declared invalid were then revised. Then based on the results of the questionnaire reliability test through the SPSS Statistics 22 program, the results were obtained as in table 1.5

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Table 1.5 Results of reliability testing with SPSS

Reliability Statistics	
Cronbach's Alpha	N of Items
.897	30

Based on the table above, the results of the reliability test using the Cronbach's Alpha formula obtained an Alpha value of 0.897 > 0.60, so it can be concluded that the questionnaire can be declared reliable.

Data analysis

Data analysis includes prerequisite tests and hypothesis tests. For prerequisite tests include normality tests with the Shapiro Wilk formula and homogeneity tests with the F test, while for hypothesis tests using the t-test formula or Independent sample t test.

RESULTS AND DISCUSSION

PjBL model by Garbage

The implementation of PjBL with garbage is based on the principles and procedures of PjBL for strengthening Pancasila students which are implemented holistically, contextually, student-centered, exploratively (Dewi, 2022). The procedure for implementing PjBL with garbage used in the study was carried out by integrating various opinions, including the opinions of Devi et al. (2019), The George Lucas Educational Foundation (2005), Samitupang & Dirga (2019), Wajdi dalam Dewi (2022), dan Delise (1997). Based on these principles and procedures, researchers formulated the steps of PjBL using garbage in this study into 9 steps which include; 1) conditioning students; 2) delivering learning objectives; 3) asking essential questions; 4) explaining the project; 5) creating and monitoring the project; 6) presenting results; 7) reflection; 8) drawing conclusions; 9) evaluation.

Figure 2.1 PJBL steps using garbage



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The steps of PjBL learning using the above items have been validated by experts and practitioners. The expert who became the validator was Dr. S, M.Pd, a lecturer who has expertise in the field of learning strategies, while the practitioner who became the validator was P, S.Pd, an MI teacher. The validation results from experts and practitioners can be seen in the table below.

Table 2.1 Validation Results by Experts and Practitioners

Number	Indicator	Assessment Results	
		Expert	Practitioner
1	The accuracy of the theory/opinion used to compile the operational definition	7.5	8
2	The accuracy of operational definitions for compiling indicators	7.5	9
3	Provides basic questions from the theme discussed	10	10
4	Planning a water cycle model project from garbage	10	10
5	Prepare a project activity schedule for a cycle model from garbage,	10	10
6	Monitoring of the water cycle model project from garbage,	10	10
7	Conducting an assessment of a water cycle model project from garbage,	10	9
8	Evaluating the project activities of the water cycle model from garbage,	10	10
9	Summarizing the project activities of the water cycle model from garbage	10	10
	Amount	**85**	**86**
	Average value	**9.4**	**9.5**

Based on the table above, it shows that the average value by experts = 9.4, while the average value by practitioners = 9.5. This shows that according to experts and practitioners, assessing the steps of PjBL learning with using garbage that are arranged has very high validity, because it is in the value range of 7.5-10.

After the learning steps have been declared valid by experts and practitioners, the implementation of PjBL learning using garbage to form Pancasila student profiles in detail can be seen in the description below.

Step 1: Conditioning students

The teacher carries out activities that can stimulate students' attention by carrying out ice breaking and apperception.

Step 2: Submission of learning objectives

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The teacher explains the learning objectives to be achieved in the learning

Step 3: Asking essential questions

The teacher displays a PPT in the form of images containing material and 11 basic questions related to the project that the students will work on.



Figure 2.2 Essential questions

Step 4: Project description

The teacher explains the type of project, used materials, how to make it, and the project completion time. The teacher explains that the type of project is to create a water cycle. The teacher explains that the materials needed include used plastic, used cardboard/HVS paper, dry banana stem waste, and used cardboard.The teacher explains how to make a water cycle from garbage. Then the teacher explains the deadline for completing the project.

Step 5: Making and monitoring the project

Students in groups create a water cycle project from garbage. While students are making the project, the teacher monitors to direct students who are having difficulties and to maintain order in the learning process.



Figure 2. 3 Students discussing and working on a project

Step 6: Presentation of results

Each group is asked to present their product results and explain the water cycle as stated in the worksheet. Meanwhile, other students are asked to pay attention, ask

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questions, and provide suggestions on the project results worked on by other groups.




Figure 2.4 Presentation of Product Results

Step 7: Reflection

After all groups have finished their presentations, the teacher invites students to reflect on the activities and results of the project. Reflection is directed to find values related to the character profile of Pancasila students.

Step 8: Draw up a conclusion

Teachers and students together conclude the learning material and values contained in the Pancasila student profile character.

Step 9: Evaluation

Evaluation activities were carried out by means of a post-test of the water cycle material and filling out a questionnaire regarding the character profile of Pancasila students.

The findings of the nine PjBL steps in this study have similarities and differences with the PjBL steps according to Devi et al., 2019: 59; The George Lucas Educational Foundation (2005); Samitupang & Dirga (2019: 68-69) ; Dewi, 2022: 217; and Delise (1997: 27-35). The similarities lie in the steps of essential questions, product design and monitoring, assessment and evaluation. Then the differences lie in the steps of student conditioning activities, delivery of learning objectives, project explanations, and presentations, where each group presents the results of their products in front of the class and other groups can provide responses and the last is the reflection activity which is directed at finding values related to the character profile of Pancasila students. The differences in these steps are findings or innovations from the PjBL Steps that existed previously.

Formation of Pancasila Student Profile

To see the formation of the Pancasila student profile, based on the results of the Pancasila student profile questionnaire in the experimental class and control class as shown in the table below

Table 2.2 Summary of percentage results of the Pancasila student profile questionnaire

Dimensions of Pancasila Student Profile	Pre-test		Post-test	
	Experiment (%)	Control (%)	Experiment (%)	Control (%)
Faithful and pious	70.5	64.06	75	76.5

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to the Almighty God				
Noble Morals	57	60.1	73	65.58
Global Diversity	57.7	60.8	72.5	62.4
Mutual cooperation	61.8	64.05	71.5	63.53
Independent	60.2	53.85	79.03	60.9
Critical	54.4	55.1	75.4	66.1
Creative	53.6	51.9	78.64	65.58
Average	**57.01**	**58.55**	**75.01**	**65.79**

Furthermore, the data above was subjected to a prerequisite test, namely the normality test with the Shapiro Wilk formula and the homogeneity test with the Levene statistics formula. The results of the normality test and homogeneity test with the help of the SPSS Statistics 22 program as in table 2.3 and table 2.4 below.

Table 2.3 Results of the SPSS Statistics 22 Normality Test

Group		Shapiro Wilk		
		Statistics	df	Sig.
Character	Experimental Group	. 917	17	. 132
PPP	Control Group	. 963	16	. 722

Tabel 2. 1 Uji Homogenitas SPSS Statistics 22

Characteristics of PPP Levene Statistics	df1	df2	Sig.
3.085	1	31	.089

Based on the output table above, the results for the significance value in the experimental group = 0.132 > 0.05 and the significance value in the control group = 0.722 > 0.05. This shows that both the data in the experimental group and the control group are normally distributed. Then based on the results of the homogeneity test with the levene statistics formula, the significance value is obtained = 0.089 > 0.05, meaning that the data in the experimental group and the control group are homogeneous.

After the data is declared normal and homogeneous, it is continued with a hypothesis test with the aim of determining the effect of the PjBL model using garbage on the formation of Pancasila student profiles. The results of the calculation using the t-test formula obtained the results as in table 2.5 below.

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Table 2.5 Independent Samples Test

Independent Samples Test

		Levene's Test for Equality of ...		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
Pancasila Student Profile	Equal variances assumed	3.085	.089	9.429	31	.000	11.9743	1.26990	9.38429	14.5642
	Equal variances not assumed			9.581	25.661	.000	11.9743	1.24977	9.40366	14.5449

Based on the output table of the t-test results above, the sig value (2-tailed) = 0.000 < 0.05 is obtained. This result shows that the formation of the Pancasila student profile between the experimental group and the control group has a significant difference. Furthermore, to determine the magnitude of the influence based on the results of the gainscore calculation, where with a sample of 33 students consisting of 17 students from the experimental class and 16 from the control class, then df = (33-2 = 31) with a sig level of 0.05 gets a table value = (+ 2,242), then t count = (+9,429), then t-count > t-table. This means that the PjBL model using has a significant influence on the formation of the Pancasila student profile.

Then, to determine the magnitude of the influence, the mean gainscore values in the two groups were compared with the results as in table 2.6 below.

Table 2.6 Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pancasila student profile	Experiment	17	17.4118	4.44492	1.07805
	Control	16	5.4375	2.52900	.63225

Based on the table above, it shows that the average valuegainscoreThe character of Pancasila Student Profile in the experimental class = 17.4 and in the control class = 5.43. Therefore, it can be concluded that the increase in the formation of Pancasila student profiles in the experimental group is higher than in the control group.

Based on these results, the findings of this study have strengthened the results of previous studies which stated that PjBL learning has an influence on student learning outcomes (Indrawan dan Jalinus,2019: 1015; Srirahmawati, A., & Hunaifi, A, 2022).

Conclusion

This study has found nine steps to implement the PjBL model using garbage, namely; 1) conditioning students; 2) delivering learning objectives; 3) asking essential questions; 4) project explanation; 5) creating and monitoring projects; 6) presentation of results; 7) reflection; 8) drawing conclusions; 9) evaluation. When

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compared to the previous PjBL steps, the novelty of this research's PjBL steps lies in 4 steps, namely; 1) student conditioning activities; 2) delivering learning objectives; 3) project explanation, and presentation, where each group presents their product results in front of the class and other groups can provide responses; 4) reflection activities directed at finding values related to the character profile of Pancasila students. This study also proves that Project Based Learning model learning using garbage has a significant influence on the formation of Pancasila Student Profile in M students with evidence from the results of the Independent Sample t test obtained a significance value (2-tailed) = 0.000 <0.05, and can increase the formation of Pancasila Student Profile characters by 17.4%.

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