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The Development of Local-Based Teaching Material in Project-Based Learning

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Abstract

This research aims at developing the local-based teaching material in Project Based Learning in theme of creatures' growth and development on third grade of primary school. The type of research and development applied in this research are referred to R&D Borg and Gall theory. The population is three primary schools of Apple cluster, *Seputih Raman* sub district. The sample is third graders of Primary School 1 Rama Murti. The data collecting technique uses non-test technique such as observation, questionnaire, and documentation. The data analysis uses descriptive analysis, precisely percentage of expert and practitioner validation. The result shows that the local-based teaching material in Project Based Learning in theme of creatures' growth and development on third grade is developed with theoretical feasibility and practicability.

1. Introduction

Education is a crucial issue and a key to success. It is defined as a measurement to a nation to compete worldwide. Through education, a nation is able to become competitive, independent, polite, and strong. To improve the quality of a nation is to improve the quality of its education system which indeed is the responsibility of all parties involved in education especially of teachers and government. Recently, the government has been coping the education quality by improving the quality of teachers and developing curriculum.

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Teaching material is one crucial component in teaching. It is required as a manual to conduct the teaching-learning process, moreover as a substance to deliver to students. Through teaching material, teaching program is able to conduct more effectively because the teacher as the conductor will get a clear material. According to (Suwarni, 2015) development of teaching materials to create a learning atmosphere for students and student creative thinking help develop students in their ability to understand and understand the meaning of a text. According to (Shih, 2018), as evident from the presented literature survey above, it is important to determine the state of the use of teaching materials and equipment, which plays a significant role in making learning easy and enduring.

The teaching material is a material consisted lesson that is used by teachers and students in a teaching-learning process which could be in form of written or spoken language. Through a teaching material, students are capable of acquiring a competence orderly and systematically. The development of teaching materials is a professional expertise of teachers in teaching so that they are able to facilitate learning in accordance with the learning objectives. Material development is a study field and practical effort. It is as a field that studies procedure and principle of design, implantation, language, and teaching material evaluation. Besides, it is as an effort which involves production, evaluation, and adaptation. This research develops available teaching materials with the real situation in field where the teaching-learning process takes place along with local prides so that students recognize and understand those localities in Central Lampung regency(Majid & Andayani, 2013).

Pointing out the above matter, researcher is interested to develop local-based teaching material in form of a module. Through developing local-based teaching material, hopefully it helps increase students' study result, ability to independently study by himself or in group, and certainly new horizon about their local pride. Not only those, but using a proper teaching model also helps improving students' result in study. Researcher did an advanced pre-research using questionnaire on Nov 30th 2020 to look into students' responses about the implementation of project-based learning model in the teaching material (Djamarah & Zain, 2010).

Questionnaires were distributed to 20 third graders of State Primary School 1 Rama Murti, Central Lampung.



P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
0	45%	0	0	45%	50%	15%	25%	0	20%
100%	55%	100%	100%	55%	50%	85%	75%	100%	80%

Figure 1
Students Need Analysis

On Figure 1 above, it shows that students in third grade of State Primary School 1 Rama Murti had ever done tasks such as designing, paper, arts, and technology, but 45% of the students have not figured out to finish those projects. In finishing those projects as much as 75% of students faced certain problems. School task projects that were done by students 100% make them more eager to study using teaching materials of creatures' growth and development.

Samples' thinking process and study type in this stage were mostly from their self-experience that started from interaction with the object not symbol, notion or abstraction. In other words, students in this

stage were unable to evaluate the abstraction therefore they needed the help from teacher. According to the above explanation, this research developed local-based teaching materials in project-based learning model.

2. Materials and Methods

This research is a Research and Development (R&D). Research and Development is a research to create a certain product. The product is developed based on need analysis in a real situation or field. That product should be validated before being tested in the field. Later, it is revised in order to produce an efficient qualified product. Pre-experiment design is used in this research with one-shot case study or recently called one-group posttest only design which according to (Setiyadi, 2013) it is a research with one experiment group and result data collecting at the end of the teaching-learning process.

Table 1
Group Posttest Only Design

Subject	Treatment	Result
1 group	X	O

Description:
X=*Treatment*
O= Result from treatment
The development stage is figured as below:

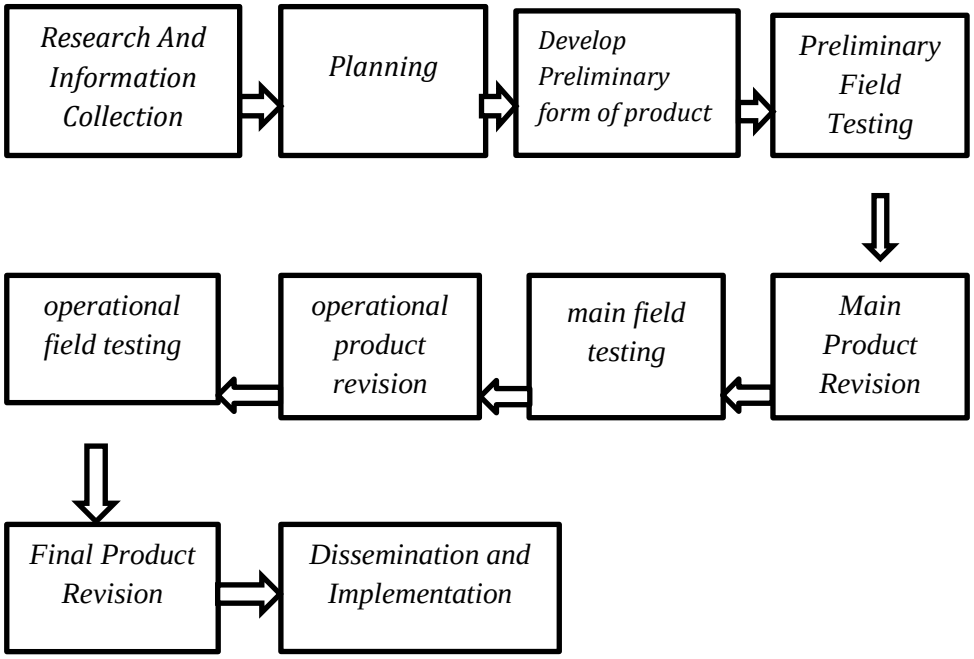


Figure 2
The development stage of R&D Borg & Gall (1983: 775)

Research Population

Population, according to (Sugiyono, 2016) is a generalizing area consisting objects and subjects that have vary in certain qualities and characteristics that have been set by the researcher to study and be drawn in conclusion. Researcher pointed Apple cluster in Seputih Raman Sub district that consists of State Primary School 2 Rama Nirwana, State Primary School 1 Rama Murti, and State Primary School 2 Buyut Baru Central Lampung.

Sample

According to Sugiyono, (2015) sample is a part of characteristics owned by the population. This research uses non probability sampling with sampling purposive technique which is a sample decision by certain consideration. The researcher considers the decision or sampling using former questionnaire in pre-research. It is State Primary School 2 Rama Nirwana as trial sample from small group consisting twelve students and three teachers of third grade, and State Primary School 1 Rama Murti as trial sample from big group consisting thirty students of class IIIA.

Data Collecting Technique

For collecting data, we applied technique of documentation, observation, and questionnaire. As the research instruments, we applied analysis questionnaire, expert validation questionnaire, and student and teacher response questionnaire. The last, we analysed the data using theoretical feasibility analysis (Expert Validation) as shown in the following formula.

1. $P = \frac{n}{N} \times 100\%$

Description:
P = aspect percentage
n = obtained aspect score
N = maximum score

Data calculation is later converted based on the criteria of expert validation. The developed teaching materials are theoretically feasible if the aspect percentage hits > 62%.

Table 2
Expert Validation Criteria

Aspect Percentage	Criteria
82% - 100%	Very feasible
63% - 81%	Feasible
44% - 62%	Less feasible
25% - 43%	Infeasible

Next, teacher and student response questionnaire is distributed to find the practicability of the product, in this case it is the under development teaching materials. The result is analyzed by descriptive percentage using the following formula.

$$P = \frac{n}{N} \times 100\%$$

Practicability criteria of teacher and student response are shown in table below:

Table 3
Practicability criteria of teacher and student response

Aspect percentage	Criteria
82% - 100%	Very Practical
63% - 81%	Practical
44% - 62%	Less Practical
25% - 43%	Impractical

3. Results and Discussions

Validation recapitulation from evaluation, material, and language experts is presented as follows.

Table 4
Experts Validation

No	Validator	score
1	Media Expert	84,00%
2	Material Expert	91,07%
3	Language Expert	90,9%
Average		88,03%
Criteria		Feasible

Source: Research Result

Table 5
Teacher Response in Small Group Trial

No	Aspects	Teacher 1	Teacher 2
1	Attractiveness	11	12
2	Convenience	14	15
3	Usefulness	16	15
Total Score		41	42
Maximum Score		44	44
Score Percentage		93,18%	95,45%
Average Percentage		94,3%	
Criteria		Very Practical	

Source: Main Data Processing Result

Table 6
Student Response in Small Group Trial

No	Aspects	Percentage per aspect	Criteria
1	Attractiveness	89,58%	Very Attractive
2	Convenience	86,45%	Very Convenient
3	Usefulness	82,29%	Very Useful
Average Percentage		86,10%	
Criteria		Very Practical	

Source: Main Data Processing Result

Table 7
Teacher Response in Big Group Trial

No	Aspects	Teacher 1	Teacher 2	Teacher 3
1	Attractiveness	11	11	11
2	Convenience	15	15	14
3	Usefulness	16	16	14
Total Score		42	42	39
Maximum Score		44	44	44
Score Percentage		95,45%	95,45%	88,63%
Average Percentage		92,51%		
Criteria		Very Practical		

Source: Main Data Processing Result

Table 8
Student Response in Big Group Trial

No	Aspects	Percentage per aspect	Criteria
1	Attractiveness	88,75%	Very Attractive
2	Convenience	85%	Very Convenient
3	Usefulness	80%	Very Useful
Average Percentage		84,58%	
Criteria		Very Practical	

Source: Main Data Processing Result

Based on the result of research and development in the local-based teaching material in Project Based Learning in theme of creatures' growth and development on third grader, it is a research and development with seven steps of research model R&D (C. & Biklen, 1998). They are presented as follows.

Theory of Feasibility

The development in the local-based teaching material in Project Based Learning in theme of creatures' growth and development is seen from the assessment result from three experts, there are media expert, material expert, and language expert. From those experts, this teaching material is theoretically feasible owing to the score from media expert is as much as 84.00, material expert is 91.07, and language expert is 90.9. The average score thoroughly is 88.03% and by definition it is very

good. The research is synchronized with theory from (Rahmawati, 2014; Wahyuni, 2015) Minister of Education and Culture Decree Number104 in 2014 which declares that in designing teaching material, it is essential to consider media, material, and language aspect. According (Afdareza et al., 2020) material feasibility supports the theory and result of previous research, therefore the teaching material that is designed is theoretically feasible.

Practicability

Practicability of the development in the local-based teaching material in Project Based Learning in theme of creatures' growth and development is drawn from the result of small group test and big group test. This assessment uses practicability questionnaire by the teacher and students consiting attractiveness, convinience, and usefulness aspect. The result from small and big group consisting five teachers' is 92.51% in average which defines very practical. Besides, the result from small and big group consisting 42 students is 84.58% in average which means very practical. Responses from teachers and students about the questionnaire show that the developed teaching material brings advantage. Precisely by local-based material using project-based learning, students recognize their surroundings. It is compatible with research result of (Widyaningsih et al., n.d.) (Amri, 2013) and Wu et al., 2015), that teaching material in project-based learning is felicitous to use whether observation sheet or observation whilst doing the project.

4. Conclusion

Built upon the results and discussions, the conclusion can be drawn as follows: The developed local-based teaching material in Project-Based Learning in theme of creatures' growth and development is theoretically feasible. This feasibility is proven by the assessment from 3 experts, they are evaluation expert, material expert, and language expert who state the developed local-based teaching material in Project-Based Learning in theme of creatures' growth and development is at very good state. The developed local-based teaching material in Project-Based Learning in theme of creatures' growth and development is practical. This is proven by small and big group test through practicability response that attractiveness, convinience, and usefulness aspect show that it is practical.

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