

Sustaining Local Culture Through Development Model of Realistic Culture of Madura (RE-MADU)

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Abstract. This study aims to preserve local culture through the development model of RE-MADU (Realistic Berbudaya Madura), as well as its learning Media that meet the valid, practical, and effective criteria. This research is a development research that refers to the general education development model of Tjeerd Plomp which consists of initial investigation phase, design phase, implementation phase; and test, evaluation and revision phases. Learning media obtained in the form of lesson plans (RPP), teacher handbooks and student handbooks; and test learning outcomes. The research instrument used is observation, student response questionnaire, and validation sheet. Based on the results of the second (final) trial obtained: RE-MADU learning model and its learning device are valid and can be used with little revision. The observation results of the learning activity are in good category. It is effective because the result of student learning reaches classical completeness, student activity during learning process including in very active category and student give positive response to learning model. The researchers conclude that RE-MADU learning model is in accordance with valid, practical, and effective criteria by following the process stages: Preparation, Problem presentation, Understanding and solving problems individually, Comparing answers, Presentations, and Drawing conclusions.

Keywords: *Local Culture, Model. Realistic, Madura*

1. INTRODUCTION

The fast technological developments in this modern period caused children less familiar with their culture. Including the culture that exists in Madurese. Traditional games are gradually being replaced by games in gadgets that might be considered more enjoyable [1];[2]. [1] said that the flow of rapidly developing digital games resulted in traditional games being almost extinct. The existence of gadgets makes children more interested in digital games than traditional games [2]. Moreover, the use of the daily language of Madurese (“*enggi enten*” and “*enggi bunten*”), which is a language that Madurese people must also know, has gradually begun to become unnoticed by children and many Madurese cultures are beginning to be foreign to children. This situation certainly cannot be allowed to remember that local culture is a cultural heritage of ancestors that should be preserved by future generations [3]; [4]. Therefore, local culture must be preserved so that Madurese culture will not become extinct.

One of the things that can do so that Madurase culture still exists is to combine Madurese local culture into school lessons, including mathematics.[5] states that specifically, local culture education aims to get to know and become more familiar with the environment, social and culture, provide the ability and skills as well as knowledge

about the area that is useful for self and generally to other people. The impact of local wisdom-based learning on student understanding [6]. Local culture learning has components [7] and functions based on practical-empirical results from the analysis of theoretical-juridical studies as an academic foundation [8]. Besides, equipping attitudes and behaviors that are in line with the values or rules that apply in the region and preserving and developing the noble values of local culture to support regional development and national development. Other than that, efforts to prepare a better future generation through education based on local culture must be done from an early age [9].[10] said the role of the local culture can be used to develop character education. Therefore, the implications of education based on local culture include producing competent and dignified generations, reflecting cultural values, participating in shaping the nation's character, contributing to the creation of national identity and character.

So that children remember the local culture from an early age to approve this learning starting to be applied since Elementary School (SD). Based on the 2013 curriculum, learning objectives based on elementary school competency standards that are expected to be achieved include: 1) Attitude Domain: having behaviors that reflect the attitude of the faithful, noble, confident, and responsible in

interacting effectively with the social and natural environment around the home, school, and playground. 2) Domain Skills can think and act effectively and creatively in the realm of abstract and concrete by what was assigned to him. 3) The domain of Knowledge: possessing factual and conceptual knowledge in science, technology, art, culture, humanities, with an insight into pride, statehood, and civilization related to phenomena and events in the environment of homes, schools, and playgrounds.

In mathematics learning a teacher can insert learning of local culture through realistic mathematics learning [11]; [12]; [13]. Realistic mathematics is the utilization of the reality and the environment understood by students to facilitate the process of learning mathematics so that it can achieve the goals of mathematics education better than in the past [14]. Teachers must use real-world contexts so students know and understand the importance of mathematics in everyday life [15]. In RME, problems presented by students can come from the real world but also the fantasy world of fairy tales, or the formal world of mathematics provided the problem is a real experience in students' minds [16]. Problem context in RME intended for support process reinvention that enables students to understand formal mathematics [17]. Mathematics learning with a realistic approach utilizes contextual problems that can be easy to understand by students and then students are given many opportunities to solve a problem independently according to the initial knowledge that student has. Concerning mathematics as a human activity, students have been given the broadest opportunity to rediscover ideas and mathematical concepts independently as a result of students' experience in interacting with contextual problems. After forming and discovering mathematical concepts, students use them to solve contextual problems as applications to strengthen the understanding of concepts in the real world.

Realistic mathematics learning can be made as a method or model in providing material and start inserting Madurese local culture. Related to local culture that can be incorporated into mathematics learning is an ornament in Madura traditional house, Taneyan Lanjang where the ornaments consist of geometric shapes that combine angles, triangles, triangles, rectangles, etc. [18], geometric studies in traditional games [2]; [19] as well as on Madura batik [20]. In addition to non-standard units used in the Madurese, sa bedheng (one paddy field), sa tondun (one stem), sa box (one paddy field), sa gintel (one bunch), sa lencer (one stem), sa contong (one

pack), sa gentang (3 kg), sa brunang (one basket), sa kelan (distance between thumb and pinkie), sa kejheng (one comb), sa cantheng (one dipper), sa pok 'on (one tree), sa bigih (one seed), and sa jhina (10 seeds) and Sa tengkak (one foot step) [21].

From the description above, it is important and need for real learning and the introduction of local Madurese culture to children, it is need to develop realistic mathematics learning models based on the local culture of Madurese. Therefore, researchers are interested in designing a model of realistic mathematics learning based on the local culture of Madura that is valid, practical, and effective.

2. METHOD

This type of research is development research, which is research-oriented to product development in which the development process is described and the product is evaluated. The development of Madura's cultured realistic model must fulfill valid, practical, and effective criteria. For this purpose, this study also developed learning media that corresponding with the learning model of Madura-style realistic mathematics and research instruments following the expected goals.

The development model that used to develop learning model and its media referring to the general education development model of [22] which consists of (1) the initial investigation phase, (2) the design phase, (3) the realization phase, and (4) the test phase, evaluation, and revision. Learning Media developed in the form of Learning Implementation Plans, Teacher's Books, Student Books, and Learning Outcomes Tests.

There are three types of instruments necessary in this study, which is consist of (a) observation sheet, (b) student response questionnaire, and (c) validation sheet. There are two observation sheets used in this study, that is the observation sheet of student activities and the observation sheet of learning accomplishments. And then for the validation sheet consists of The research instrument validation sheet and the learning media validation sheet. The research instrument validation sheet consisted of (1) the learning model assessment validation sheet (2) the learning validation observation sheet, (3) the student activity observation sheet, and (4) the student response questionnaire validation sheet. While the learning media validation sheet consists of (1) RPP validation sheet, (2) Teacher's Book validation sheet (3) Student book validation sheet (4) Learning Outcome Test validation sheet

Data in the form of a validator's statement about the validity of the model developed, whether or not the developed model is applied, the results of the implementation of learning, student activities, student learning result, and positive student responses to learning. While the data sources are some experts who are competent in the development, The teachers who teach the students, the

implementation of learning in class, and students who are subjected to learning models that are being developed. The instrument used for collecting learning model development data and learning media development is a validation sheet. The validator is asked to provide an assessment by filling in a column about the assessment results consisting of (1) invalid (2) less valid (3) valid (4) very valid.

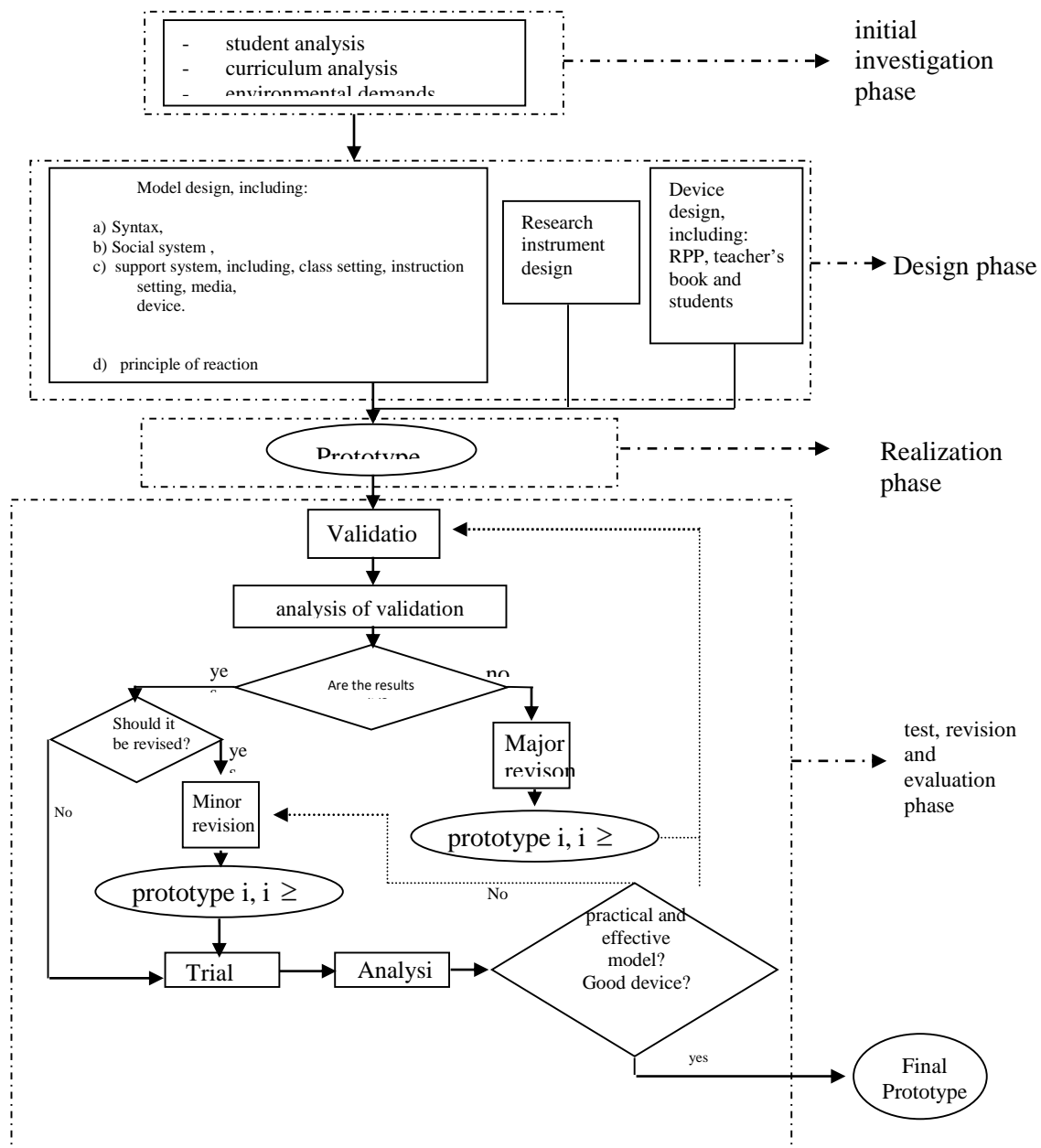


FIGURE 1. The phases of developing learning models, learning media and research instruments
Analyzing data

The criteria for the quality of learning devices are based on the criteria stated by Nieveen, namely: valid, practical and effective:

1. Valid, Activities are undertaken to analyze data about the validity and practicality (theoretically) of learning models and the validity of learning media is to do a recapitulation of all statements from the validator and match the total average with the specified categories. If the validation results show that it is not yet valid or practical (theoretically) and needs to be revised, then a revision of the learning model being developed is carried out. The learning tools developed are validated first by expert validators. These revisions can directly result to the learning media that are being developed.
2. The practicality and effectiveness category can be seen in the category of good learning media. Aspects of practicality can be used if experts and teachers determine the model developed can be applied and the evaluation results of the learning process indicate a good category. If observations are not proven, a revision is being made on the learning media that are being developed.
3. The learning model meets the effectiveness of the category if the expected objectives of the learning carried out are met. An indicator to state that the learning media developed is effective learning achievement, student activities included in the active or very active category, and student responses included in the positive or very positive category.

3. RESULT AND DISCUSSION

3.1 Results

3.1.1. Result of PMR-MADU model validation

Validation sheets are not validated by experts but are only discussed with colleagues doing development research. The validation sheet consists of the validation sheet of the research instrument and the learning device validation sheet. The research instrument validation sheet consisted of (1) the learning model evaluation validation sheet (2) the learning validation observation sheet, (3) the student activity observation sheet, and (4) the student response questionnaire validation sheet. While the learning device validation sheet consists of (1) the RPP validation sheet, (2) the Teacher Book validation sheet (3) the Student book validation sheet (4) the Learning Outcome Test validation sheet, then the validation of the research instrument and the learning media is carried out. The following summarizes the results of the validation of research instruments and learning media.

3.1.2 Results of research instrument validation

The instruments used in this study include an observation sheet consisting of an observation sheet of student activities and an observation sheet of learning accomplishments; student response questionnaire sheet; and validation sheets consisting of (1) RP validation sheets, (2) validation sheets of learning implementation observations, and (3) student response questionnaire validation sheets. The results of the validation show in table 1.

TABLE 1. Results of research instrument validation

Component	Analysis Results	Revision suggestion	Decision
Learning Model assesment	3,4	Improve sentences from the description of the learning steps so that they are easy to understand.	Can be used with minor revisions
Observation sheet on the learning process	3,5	Improvements to the sentence, the order of judgment is adjusted to RPP and appearance.	Can be used with minor revisions
Observation sheet for the student activities	3,5	Improvements to the sentence, the order of judgment is adjusted to RPP and appearance.	Can be used with minor revisions
Student response questionnaire sheet	3,6	Improve sentences and question order.	Can be used with minor revisions

3.1.3 Results of PMR-MADU learning devices validation

The learning media validation sheet consists of (1) RPP validation sheet, (2) Teacher's Book validation

sheet (3) Student book validation sheet (4) Learning Outcome Test validation sheet. The results of the validation show in table 2.

TABLE 2. Results of PMR-MADU learning media validation

Component	Analysis Results	Revision Suggestion	Decision
RPP	3,7 (Very Valid)	Detail the time allocation into every step activity learning, improvement the language to obvious instruction, Clarify the learning step especially to the introduction step, and solve the problem.	Can be used with minor revision
Teacher's Book	3,6 (Very Valid)	Cover is made more attractive, drawing format, discussion of questions, layout of images and writing.	Can be used with minor revision
Student's Book	3,6 (Very Valid)	Cover is made more attractive, drawing format, discussion of questions, layout of images and writing.	Can be used with minor revision
Test	3,7 (Very Valid)	Writing, improving language so instructions are clear, reducing and adding questions.	Can be used with minor revision

3.1.4 Trial results

After conducting the validity of the learning instruments and media, the researcher conducted a

trial related to the learning model and the results of the trial show in table 3.

TABEL 3. Trial results

No	Component	Trial I	Trial II
1	Students activities	2,7 With good criteria	3.4 with very good criteria
2	Teacher's ability to manage learning	2,8 with enough criteria	3.5 with very good criteria
3	Student's response to learning	The Positive Category is 90%	The positive category is 96%
4	Result of learning	The average student score is 75.7 and meets the classical completeness criteria	The average student score is 88.6 and meets the classical completeness criteria

3.2 Discussion

3.2.1 Validity

The RE-MADU learning model is declared valid by the expert, it's just that the experts suggest that the problem presentation step needs to be considered so that the problem given to the student must be adjusted to the student's situation so that it results in problems in the media that must be revised. This is consistent with [23] that product validity is determined by the validator (expert) and the results of this study are in line with the results of the validity study related to the development of learning models conducted by [24].

3.2.2 Practicability

Based on the valuation by an expert to show that the RE-MADU learning model can be applied and observation result towards implementation learning

in trial 1 is 2,4 or are in the category good enough, So The RE-MADU learning model can not be said to be practical. Some evaluation that does as an improvement to Trial 2 is that teachers need noticed step by step for learning especially to the introduction step. At this step, the teacher is still not fluent in conveying the relevance of subject matter with student experience or with things that allow students to grasp its relationship with the structure of knowledge they already have. This step is important so students are motivated so that they are interested in participating in learning. Also, this step aims to focus students' attention so that they concentrate more during the learning process.

Besides that, teachers need to pay attention to students at the step of problem-solving individually, at this step, some students directly working together with the team, so teachers need to keep the students

still independent to solve the problem. Some Obstacle due The teacher does not understand the syntax of the RE-MADU learning model because during this time the teacher is still carried away with conventional learning, the teacher is still not accustomed to group learning so when arranging the discussion the teacher is still struggling. After the second trial, the results of observations on the implementation of learning obtained by 3,4 or in the excellent category. So it can be concluded that the RE-MADU learning model is said to be practical.

3.2.3 Effectiveness

Indicators to state that the learning tools developed are effective as there is an increase in student learning outcomes achieving classical completeness 85% (score 60), student activities included in the active or very active category, and student responses included in the positive or very positive category. Based on the results of trial 1, two indicators of effectiveness have met the criteria, namely positive student responses to learning > 60% and learning outcomes meet the classical completeness of 85%. But one other indicator is that student activities do not meet the criteria. Based on the results of observations on student activities in try 1, the criteria are quite good.

Based on the results of the evaluation, there are several indicators that have not been met by students including: 1) in the introduction step some students have not been able to connect the subject matter with the experience of students this is because they are still busy with their respective activities so that they are not ready to accept lessons 2) at the step of solving problems some students are still not seriously working on the problem given by the teacher and some have not done individually by looking at the work of their friends 3) at the step of comparing answers, students have not been seen as compact matching their answers and there is a less serious discussion to determine the answers that are considered correct.

After a discussion was held between the researcher and the teacher, an improvement was made that was applied to Trial 2, and the results of the students' activities increased to a very good category. Also with indicators of student learning results and responses. So it can be concluded that the RE-MADU learning model is said to be practical.

The realistic mathematics learning model can be used as a method in providing material by one of which is inserting the local Madurese culture. In addition, the use of contextual problems that are easy for students to understand then students are given the widest possible opportunity to solve the given

problems independently in accordance with the local Madurese culture.

4. CONCLUSION

Based on trial result 2 (lastly) obtained: The RE-MADU learning model and the learning media is valid and can be used with bit revision, it's practical because the expert stated that model developed can be applied and observation result on the implementation of learning process in the good category, The RE-MADU learning model is effective because student learning result achieves classical completeness, student activities during KBM are included in the very active category and students give positive responses to the learning model. Based on the above results, The RE-MADU learning model is obtained that meets the valid, practical, and effective criteria with the syntax: preparation, preparation of problems, understanding and solving problems individually, comparing answers, presentations, and give conclusions.

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