

# DEVELOPING OF LEARNING EQUIPMENT BASED ON JAVANESE CULTURE TO INCREASE INTER-INTRA INTELLECTUAL PERSONALITY OF MATHEMATICS

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**Abstract** - One of the things that need to be considered in an effort to prepare the qualified of preservice teachers paying attention to hard skills and soft skills. To develop the soft skills among student of mathematics pre-service teachers need to be given a problem-solving skills, technical skills, cognitive skills, and increase the inter-intra intellectual personality. This research aimed to develop the valid of learning equipment based on Javanese Culture to increase inter-intra intellectual personality. Development procedures performed five stages, namely: (1) a preliminary study, (2) development, (3) evaluation, (4) revised, and (5) the finished product. The data analysis using descriptive data analysis. The result of this research is already generating a valid learning equipment to increase the inter-intra intellectual personality of students mathematics pre-service teacher which consist of arrange lesson plan and Students Project Taks based Javanese Culture.

**Keywords:** Lesson Plan, Javanese Culture, Inter-Intra, Project Taks

## 1. INTRODUCTION

In the globalization era, especially in facing the ASEAN Economic Community (MEA), the education system in Indonesia has complex challenges in preparing qualified, competitive human resources. One of the appropriate efforts to prepare the quality human resources and to create the only institution to develop them is through education. In the field of education, one of the human resources very influential in improving the education quality is the teacher. In this perspective, the effort to take is to prepare the prospective professional teachers to have good provisions to enter the education world which is complex in the future. With good competences, the teachers will succeed in educating their students.

One thing that should be taken care in the efforts to prepare the qualified prospective teachers is to consider *the hard skills* and *the soft skills*. According to Utomo (2010), “the success is determined 80% by *the soft skills* and 20 % by *the hard skills*. Therefore, it is clear that *the soft skills* are more influential than *the hard skills*. One of the soft skills is intra-personal intelligence that the prospective teachers should posses. The intra-personal intelligence is the intelligence which shows someone’s ability in understanding him/herself whereas the interpersonal intelligence is defined as the ability in understanding others.

A student’s success is influenced by some factors such as intelligence, verbal competence, and other competences which influence the student’s learning achievement. The research findings in Harvard University of the United States by Akbar (Patimah, 2011) show that someone’s success is not only determined by the technical knowledge and competences, one of them being the verbal competence (*the hard skills*), but also supported by *the soft skills* which include *intrapersonal skills* and *interpersonal skills*. *Intrapersonal skills* are related to the ability in understanding selves, whereas *interpersonal skills* are the ability in socialization.

The ability to interact with others as part of *the soft skills* will help someone in their learning process. In the learning activities, there are interactions between the teacher and the students or between one student and another. Those interactions can help the students’ developments, one of this being the cognitive development. The individual competence in the social interaction is badly needed in the learning process. Thus, the interpersonal skills play an important role. According to Buhrmester in Dayakisni and Hudainah (2006:21), the aspects of the interpersonal skills include (1) initiative ability, (2) self-disclosure ability, (3) assertive ability, (4) the ability to give the emotional support and (5) the ability to deal with conflicts.

Intra personal and interpersonal intelligences are influenced by the habits and behaviors during someone’s life, both as a person and as a prospective teacher. In this research, the subjects are prospective teachers in Java region, so that the intra-personal and inter-personal intelligences are not

independent of the influence of the Javanese culture. There are many cultural values (Javanese culture) related to the intra-personal and inter-personal intelligences which are relevant with the educational and instructional processes, such as: *nastiti ngati-ati*, which means working orderly, accurately, and carefully; *aja rumangsa bisa nanging bisa rumangsa* which means never feel too clever to learn, but feel happy to learn; *alon-alon waton kelakon* which means although go on to achieve the goal though slow; *rukun agawe santoso* which means living harmoniously to get the success; *ojo dumeh* which means never be arrogant but appreciate others' opinions instead; *gotong royong* which means working together to achieve the common goal. To develop the *soft skills*, the prospective teachers should have the problem-solving ability, the technical ability, and the cognitive skills which are oriented to the Javanese culture. This is accordance with the research findings by Puji (2015) which show that the Javanese society's condition is influenced by the feudalism along with the Western culture in 19<sup>th</sup> century era.

Based on the field survey, the existing teaching instruments are less conducive to develop the intra- and inter-personal intelligences of Mathematics prospective teachers maximally. Based on the condition, it is necessary to develop the teaching instruments through the Javanese culture-based learning to develop the intra- and inter-personal intelligence of the Mathematics prospective teachers.

The problem in this research can be formulated as follows: "How to develop the valid Javanese culture-based teaching instruments to develop the inter- and intra-personal intelligences of the Mathematics prospective teachers?"

## 2. METHOD

This is a developmental research which aims at developing the product of the teaching instruments based on the *Javanese culture*. The teaching instruments include the lesson plans and the students' project task.

The procedure in developing the teaching preparations uses the steps developed by Borg and Gall. In this research, the steps are modified into five stages of research and development processes:

1. Preliminary study, including the library research, field survey, and analysis of Javanese Culture potential.
2. Development, in the form of preliminary product, that is, the teaching preparation through the Javanese culture-based project learning.
3. Evaluation, to validate the preliminary product conducted by three validation experts.
4. Product Revision, to revise the product based on the result of expert's evaluation. This revision is used to make up the preliminary product.
5. The final product, the final product based on revised results.

To describe the research data, the descriptive analysis is used. The descriptive analysis is derived from the expert validation data. The evaluation data of the teaching instruments are obtained from three validation experts. To evaluate the teaching instruments, we used expert validation forms are used as the instruments. The teaching instruments are said to be valid if the evaluation scores reach 3 points in a 1-5 scale.

## 3. RESULTS AND DISCUSSION

### 3.1. Preliminary Study

In this stage, the researcher compiled many kinds of related Javanese culture theories. This was done to add the references as research materials to understand the Javanese culture. These are some references that used in this research:

The next step was the field survey. This activity was conducted to compile the information on the implementation of the learning process in Mathematics Study Program related to the implementation of Javanese culture during the learning process. Based on the field survey, it was obvious that most teachers agreed that Mathematics lectures for the vocational high schools could only be mastered by memorizing many kinds of formula. Most lecturers of Mathematics for the vocational high schools stated that so far they had never integrated the Javanese culture into the learning materials. Therefore, those lecturers admitted that the prospective teachers' appreciation toward the Javanese culture was still low. Therefore, an analysis of the Javanese culture potential should be conducted. This is relevant to Malinowski's opinion (Koentjaningrat, 2002) that the culture in the

world has seven universal elements, among others: a) language b) technology system c) livelihood system d) social organization e) knowledge system f) religion, and g) arts.

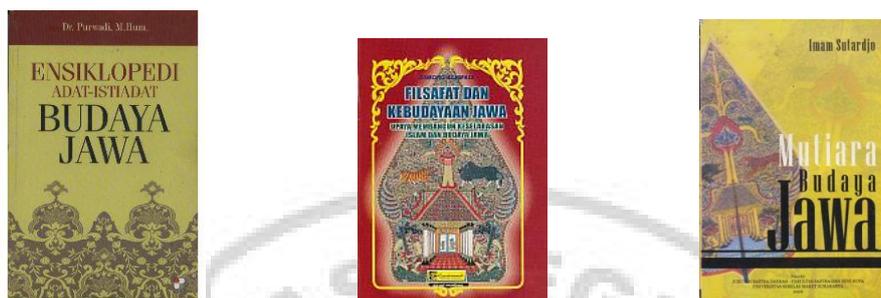


Figure 1. Library research of Javanese culture.

In this research, the elements of the Javanese culture potential which are analyzed include the livelihood system, the social organization, and the arts. As the implication, these cultural elements from the surrounding environment are implemented in the learning process.

### 1. Development

In this stage, the researcher formulated the learning topic by conducting some steps in reviewing syllabus of Mathematics lecture for the vocational high schools, identified standard competence and basic competence, and find out the theories about mathematics subject in vocational high school. Thus, the results are:

- a. Lesson Plans that are arranged by integrating Javanese culture potential.
- b. Students' project task that are integrated with Javanese culture potential.

### 2. Evaluation

The evaluation stage in this research was conducted by some experts. They are experts of learning topic and media that give assessment or evaluation and suggestion towards lesson plan and students' project task.

The summary of the results of validation from some experts that can be shown in the following table:

Table 1. Assessment validation of Lesson Plan

Component	Validator			Means	Criteria
	1	2	3		
Identity	4,00	4,00	4,00	4,00	Good
Purpose	4,00	4,00	4,20	4,07	Good
Insrument Presentation	4,50	4,50	4,50	4,50	Good
Learning steps	4,00	4,50	4,25	4,25	Good
Language	4,33	4,00	4,00	4,11	Good

Table 1 shows that the mean score of expert validation is 4,19 from the maximum score 5 and included to the good criteria. It means that the lesson plans which are developed in this research are valid to be used in the learning process.

Table 2 shows that the mean score of the expert validation is 4,33 from the maximum score of 5 and belongs to the good criteria. It can be concluded that students' project tasks which are developed in this research are valid.

Table 2. Assessment validation of project task experts

Component	Validator			Means	Criteria
	1	2	3		
Format	4,00	4,50	4,50	4,33	Good
Language	4,25	4,25	4,50	4,33	Good

Content	4,40	4,40	4,20	4,33	Good
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### 3.2. Discussion

Based on the the findings related to the development of the lesson plans and students' project task, it shows that the result of expert validation to develop the lesson plans gained the mean score of 4,19 from the maximum score of 5 and belongs to the good category. Meanwhile, the mean score for students' project tasks is 4,33 and also belongs to the good category. Consequently, the teaching instruments which developed in this research is valid to be used in learning process that integrated with javanese culture. This is in accordance with Berthall's opinion in Prastiwi (2011) which states that the soft skill is personal and interpersonal attitude that can develop and maximize human being's performances (through training, developing team work, initiative, decision making, etc). These soft skills are the students' basic provision to develop maximally according to the individuals. It means that developing the soft skills must be done for all students without exception.

The importance of developing the soft skills for students is obvious because many graduates of the Mathematics prospective teachers are unable to apply their knowledge in the society. This happens because during the lecturing process, the students just focus on the input, the process and the output whereas the students' outcome is not well taken into account. Hence, the good outcome is one of factors in getting success as pre-service teachers, Kresnayana Yahya in Prastiwi (2011). To have a good outcome, the university should teach soft skill (competence to develop and maximize the performance) towards students of pre-service teachers. Soft skill has characteristics soft that including psychology, emotional, and spiritual skill.

The world education shows that based on research in Harvard University, of the United States, someone' success is not only determined by the knowledge and the hard skills, but also soft skills. This research shows that the success is only determined by 20 % by the hard skills and 80% by the soft skills. The reality in Indonesia is that the education has given more portions on the hard skills. Even it can be said that that the education has just been oriented in the hard skills. Then, to what extent must the soft skills be given in the education curriculum? Considering that the true determinant of the individual's success is the soft skill, the students need to develop good soft skills by applying the appropriate learning steps as follows: *learning to know*, *learning to do*, *learning to live together*, and *learning to be*. Those students who have the soft skills are not only capable of thinking creatively (creative thinking) but thinking critically (critical thinking). Also, they will have the self-confidence, the thinking concept, and the ambition to be successful.

### 4. CONCLUSION

Based on the research findings, it can be concluded that the research has produced the valid lesson plans and the Javanese culture-based students' project tasks to improve the inter-intrapersonal intelligences of the mathematics prospective teachers.

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