

Developing a Lesson Plan for Physical Education for Junior High School Which Implements Jigsaw Technique: Based on Cooperative Learning Approach

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Abstract: This research is motivated by the need of enhancement of ways of developing lesson plans for physical education. This research aims to produce a lesson plan for physical education which implements jigsaw technique which can be implemented as a learning resource for junior high school teachers. The design of this research is Research and Development which refers to the theory of Borg and Gall (1983). The subject of the development of this research is learning material of physical education for junior high school students which focuses on big ball based games. Data collection was done by distributing the instrument in the form of rubrics for assessment to the curriculum experts and subject masters. Data analysis technique uses both descriptive quantitative and descriptive qualitative based on the result of the input and suggestion from the experts. The result of this research is in the form of a lesson plan which implements jigsaw technique, especially for physical education subject. According to the curriculum experts, the validity result falls into the category of very good with the percentage of 89,75% whereas based on the subject masters, it falls into the category of very good (82,5%) and from the validity questionnaire, teacher judgement, it is good (77,60%).

1 INTRODUCTION

In an education system, curriculum is dynamic and there should always be changes and development to catch up with the world. The development of the 2013 Curriculum will produce productive, creative, and innovative humans through integrated empowerment of attitude, skills, and knowledge. In this case, the curriculum development is focused on the construction of students' competencies and characters in the form of a combination between knowledge, skills, and development as well as challenges of the era. However, the changes and development should be done systematically; it should have a clear direction as well, not just for the sake of making a change. The changes and development of the curriculum need to have a clear vision and direction: where the national education system will be directed to with the curriculum. According to (Mulyasa, 2014), the 2013 Curriculum is a follow up of the Competence-based Curriculum which was in trial in 2004. The development of the 2013 Curriculum will produce productive, creative, and innovative humans through integrated empowerment of attitude, skills, and knowledge.

In this case, the curriculum development is focused on the construction of students' competencies and characters in the form of a combination between knowledge, skills, and attitude which can be demonstrated by students as a form of understanding towards the concepts they learn contextually. The 2013 Curriculum enables teachers to assess the learning outcomes of the students in the process of achieving the learning objectives which reflects the mastery and understanding towards what have been learned. Therefore, students need to know the criteria of the competency mastery and characters which are used as the assessment standards of learning outcomes so that they can prepare themselves by mastering several competencies and certain characters as requirements to continue to the other competencies and characters (Mulyasa, 2014).

There are some teaching and learning models suggested by the 2013 Curriculum, one of which is cooperative learning. Cooperative learning in physical education is a learning method which facilitates the students to work together in small groups to learn psychomotor, cognitive, and

affective domain (Dyson, Griffin, & Hastie, 2004; Iserbyt, Madou, Vergauwen, & Behets, 2011). This is marked by various forms of student interaction through physical activity. Cooperative learning in physical contexts in the level of activity or skill performance as well as problem solving is a large part of research on cooperative learning that has focused on increasing physical activity. Cooperative learning is the practice of applying social skills in a face-to-face interaction done with their peers and physical activity to improve problem solving.

Cooperative learning model is a teaching and learning model that enables students to learn actively and participatively. Cooperative learning is a respected pedagogy, which has the potential to positively influence student achievement, motivation for learning, intergroup relations, thinking and problem solving (Balochea and Brodyb, 2017). Adam's research says that jigsaw empowered both teachers and pupils to resort to the use of collaborative learning due to its immense benefits in learning program in sport education.

The model maximizes the learning activity by grouping students into small groups and enabling them to learn from each other together. There are several techniques in cooperative learning, one of which is jigsaw technique. By using jigsaw technique, students can direct their attention in the teaching and learning process so that their understanding towards the materials can be maximized. The jigsaw strategy is a cooperative learning technique appropriate for students. There are several benefits of jigsaw technique in teaching; teacher does not become the sole provider of knowledge because most of the work is done by the students themselves which makes it an efficient way to learn. Students take the ownership in the work and achievement and therefore students are held accountable among their peers.

It can be seen from the collaborations between students in jigsaw technique as an effort to understand the concepts of the materials. The collaborations have an impact on the improvement of students' learning motivation. The jigsaw technique makes students do more learning activities such as asking their friends instead of their teachers and can create a more enjoyable learning (Made, 2011). Jigsaw technique is beneficial to teaching because the learning process involves interaction with peers. Students are active participants in the learning process and thereby help to build interpersonal and interactive skills among students. The use of this technique also makes teachers find it easy to learn and enjoys working with it. It can be

used in combination with other teaching strategies and it can be effective even if it is used for just an hour per day (Francis Hull Adams, 2013).

In this case, the teaching and learning model used by teachers cannot improve students' learning motivation since students only act as listeners and receivers of the materials delivered by the teachers. There are still few teachers of physical education who develop learning models using jigsaw technique based on cooperative learning. Therefore, it is expected that they will know better about model variations in lesson planning.

One of techniques which can be implemented in the lesson planning is jigsaw technique which is based on cooperative learning. One of the schools that has implemented this model is SMP Negeri 3 Pajangan. Physical education teachers at SMP Negeri 3 Pajangan have implemented jigsaw technique in teaching football. The implementation of jigsaw technique is expected to make students more enthusiastic and to facilitate them to study in groups by discussing the materials being learned. This research is very important because it will help Indonesian junior high school students. In addition, this research develops a new programme to increase enthusiasm, confidence, leadership, creativity, and argumentation. Jigsaw technique was applied to the experimental group as a treatment, while the control group received traditional teaching.

The data collected were analyzed using descriptive statistics. The results of the findings indicate that the teaching of physical education using jigsaw technique is more effective than the traditional teaching method in increasing academic achievement. Additionally, it is further inferred that jigsaw technique increases positive attitudes toward subject learning (Yemi, Binti, & Azid, 2018). The technique was randomly introduced into some classrooms. It helps to compare between students who learn using Jigsaw technique and those who are not. Students in the jigsaw classes expressed significantly, had more self-confidence and liked school better when tested objectively. Behavioral data support these self-report measures. Less students were absent in jigsaw classes. They made more interaction in the cafeteria and in the school yard and performed better in exams.

2 METHODOLOGY

This research adopts Research and Development model. Research and Development is a type of research which produces a product (Sugiyono, 2013).

The product developed in this research is a lesson plan which implements jigsaw technique of cooperative learning.

2.1 Data, Instruments, and Data Collection Techniques

Two instruments were developed and used to evaluate the product and to identify the appropriateness of the product. The instruments were in the form of: (1) Instrument of appropriateness evaluation for material experts, and (2) Instrument of appropriateness evaluation for curriculum experts. All of the instruments are in the form of questionnaires. The data in this research were collected by distributing the evaluation sheets to the experts.

2.2 Data Analysis Techniques

The first technique used in this research was quantitative descriptive analysis in the form of percentages while data in the form of suggestions and reasons of choosing the answers were analyzed using qualitative analysis technique. The scores of the evaluations from the experts and the students were then categorized using a percentage formula. The data analysis technique in this research was done in two steps. Following are the steps of the data analysis.

1) Converting the category values into evaluation scores, The evaluation which was in the form of category values were converted into evaluation scores (Sugiyono, 2009). The conversion from category values into evaluation scores used the following criteria.

Table 1: The Evaluation Score of the Lesson Plan Development

No	Category	Score
1	Very poor	1
2	Poor	2
3	Fair	3
4	Good	4
5	Very good	5

2) Analyzing the score by adding up the scores obtained from the research then dividing the total by the ideal score for all items and multiplying it by 100%.

Table 2: The Categories of the Lesson Plan Development Evaluation and Expert Judgement

No	Percentage	Category
1	0% - 20%	Very poor
2	20,1% - 40%	Poor
3	40,1% - 60%	Fair
4	60,1% - 80%	Good
5	80,1% - 100%	Very good

Percentage of evaluation score:

$$\frac{\sum \text{score obtained}}{\sum \text{ideal score of all items}} \times 100\% \quad (1)$$

(Sugiyono, 2009)

3 INTERVENTION, RESULTS AND DISCUSSIONS

3.1 Pre-intervention

To ensure the effective implementation of cooperative learning in the classroom, the researcher explained why he wanted to use cooperative learning and explained its benefits to the students. To assist the explanation, he distributed flyers that explained collaborative learning. Group sizes ranged from two to four students, depending on the cooperative learning tasks. Groups were formed by bringing students together to share the material being studied. Once a group was assigned, students were given the time needed to work together for a while before moving to a different group.

Researchers also carried out the learning process in the field so students could actively move. The agreed methods and materials chosen by the researchers were asked to contribute to the successful group. There are several considerations regarding whether the research must be approved or not in this decision. Whether the researcher chooses to play a role in a group, he believed there are different roles for each student. Moreover, the researchers assisted students in choosing roles that use their strengths and increase their weaknesses. The researcher also warned the students not to choose the same role repeatedly. Some roles chosen or assigned include facilitators, time organizers, note takers, examiners (for understanding), and summarizers, elaborators (based on prior knowledge or discussion points). (Francis Hull Adams, (2013).

3.2 Intervention

After the preparation was done, it was time to begin working. During the intervention phase of cooperative learning, the students played the most important role. Some of the tasks the students should do were; Working together, listening to one another, questioning one another, keeping records of their work and progress, producing the assessment task (product), and assuming personal responsibility being involved in the group.

3.3 Steps Involved in the Intervention

Students were divided into five groups consisting of six people, each of which has a group of letters and numbers. The researchers asked each group to choose the leaders representing the president and the secretary. After selecting the president and secretary, assignments on five different topics (all were related to the main topic) were given to the groups.

The students were allowed to do the work after the task was given. During the discussion, the researcher walked around to supervise the work to provide assistance to the group. Later, after 30 minutes, they were asked to move to their letter groups to teach other group members about their areas of speciality. After they had finished teaching other members with different speciality, each group was invited to do a presentation. After the presentations, there was a plenary session. The researcher gave final comments on the whole activity and brought it to an end.

3.4 Post-intervention

Post-intervention is an evaluation of the outcome of the intervention. After completing the group work and assessment tasks, the students' job was to reflect on the work that was accomplished in the group. What worked well and what did not work? What would they change or keep next time they work together. The students also gave feedback to the researcher and this is a sign which shows that they were really having cooperative learning. They were able to tell the researcher what worked or what was good about a particular unit and they did point out what did not work well. This information had been written down and informally discussed with them.

Research question 1: What are the steps involved in using jigsaw technique in teaching? After the activity, students were interviewed with regards to the steps involved in planning jigsaw. The respondents came out with a number of steps to

implement jigsaw technique. The steps identified by the respondents perfectly agreed with the ten steps of Aronson (2008). They are:

- 1) Students are divided into 5 or 6 people's jigsaw group. The group should be diverse in terms of ethnicity, gender, ability and race.
- 2) One student should be appointed as the group leader. This person should initially be the most mature student in the group.
- 3) The day's lesson is divided into 5-6 segments (one for each member).
- 4) Each student is assigned one segment to learn. Each student should only have direct access to their own segment.
- 5) Students should be given time to read over their segment at least twice to become familiar with it. Students do not need to memorize it.
- 6) Temporary experts groups should be formed in which one student from each jigsaw group joins other students assigned to the same segment. Students in this expert group should be given time to discuss the main points of their segment and rehearse the presentation they are going to make to their jigsaw group.
- 7) Students come back to their jigsaw group.
- 8) Students present their segment to the group, other members are encouraged to ask question for clarification.
- 9) The teacher needs to float from one group to other group to observe the process. Intervention may be needed if any group is having trouble such as member being dominating or disruptive. There will come to a point that the group leader should hand this task. Teachers can whisper to group leader as to how to intervene until the group leader can effectively do it themselves.
- 10) A quiz on the material should be given at the end so students realize that the sessions are not just for fun and games but they really count.

This model, according to (S.B. Olorukooba, 2001) was developed by Elliot and is based on the notion of cooperation that each individual will develop, and each individual can achieve his goals only if all the other individuals in the group achieve their goals. In jigsaw, students are divided into groups and assigned to work on academic material that has been broken down into sections. For example, the material of football game can be divided into basic techniques of dribbling, shooting

and combination. Each team member reads the part. After that, members of various teams who have the same section meet in expert groups to discuss their part. After that, students return to their team and tell their teammates about their part in turn. Because the activity will work if the students listen carefully to their teammates, they are motivated to support and pay attention to each other's work. Elliot uses special cooperative learning to unite children of various races and abilities.

3.5 Results

The result of this research is in the form of a lesson plan. This research uses a method developed by Borg and Gall (1983:222) that has been modified because the steps of the research are quite suitable for creating a product in the form of lesson plan. Those steps were:

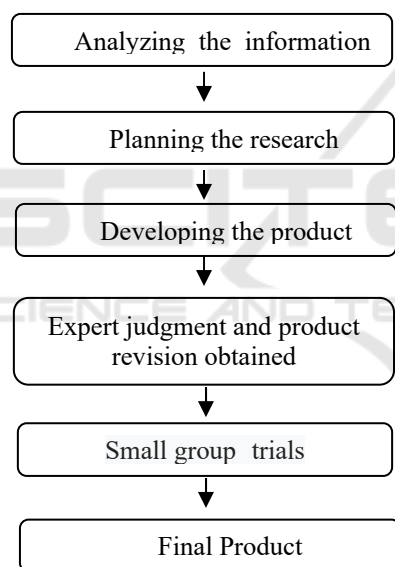


Figure 1: Lesson plan steps

The research aims at producing a lesson plan of big ball based games which implements jigsaw technique, which can be used by teachers in the teaching and learning process of physical education.

Based on the previous tables and figures, it can be concluded that the results of the implementation of physical education teaching and learning based on the 2013 Curriculum at the state junior high schools in Bantul district in the academic year 2016/2017 fall into these categories: good, according to 4 respondents (5.79% of total respondents); fairly good, according to 55 respondents (79.71% of total

respondents), and; slightly poor, according to 10 respondents (14.49% of total respondents).

3.6 Discussions

The 2013 Curriculum is a development of the previous curricula, namely Competence-based Curriculum that was started in 2014 and School-based Curriculum in 2006. The 2013 Curriculum emphasizes the improvements and the balance between soft skills and hard skills which include attitude, skills, and knowledge aspects.

The development of the 2013 Curriculum will produce productive, creative, and innovative humans through integrated empowerment of attitude, skills, and knowledge. Students do not only become independent, but also rely on the teacher. This model provides encouragement to think and supports active learning. This model also encourages students to ask questions and argue. The learning process of physical education therefore becomes more challenging, the students become active and they have the skills to think critically (Sulisworo, Syriac. 2014).

In this case, the curriculum development is focused on the construction of students' competencies and characters in the form of a combination between knowledge, skills, and attitude which can be demonstrated by students as a form of understanding towards the concepts they learn contextually. There are some teaching and learning models suggested by the 2013 Curriculum, one of which is cooperative learning. Cooperative learning model is a teaching and learning model that enables students to learn actively and participatively. The model maximizes the learning activity by grouping students into small groups and making them learn from each other together. There are several techniques in cooperative learning, one of which is jigsaw technique. By using jigsaw technique, students can focus their attention during the teaching and learning process so that their understanding towards the materials can be maximized. This technique does not only facilitate the students to become more independent, but also provides encouragement to think and actively participate in learning.

This model encourages students to dare to ask questions and debate, so that the learning process of physics hopefully becomes more meaningful. Furthermore, it is hoped that this model can encourage the teachers to put cooperative learning into their list of teaching methods. The popularity of this approach can be attributed to the substantial

body of research that supports the positive role of cooperative learning in improving student achievement and promoting deep learning, as well as evidence showing that students generally prefer cooperative learning exercises rather than more passive modes of instruction such as lectures (Johnson et al., 1998b; Slavin, 2011; Yamarik, 2007 thinking skills).

The responses from the curriculum experts and material experts about the lesson plan development varied. One of them suggested to put more emphasis on the steps of jigsaw so that the readers could understand better about what is meant by jigsaw technique. Furthermore, the responses of the small group trial consisting of 10 junior high school teachers in Bantul district reveal that some teachers have not understood about jigsaw method. It is expected that the developed lesson plan which implements jigsaw technique can be a learning reference for the teachers so that they can develop learning models in lesson plans.

Well-designed cooperative learning activities provide formative assessments of individual performance (i.e., provide individual accountability); positive mutual support fosters trust among students. Understanding the relationship between personality types and students' perceptions towards cooperative learning equips instructors to more effectively communicate the benefits of cooperative learning activities, to respond to and anticipate students' (positive and negative) responses to cooperative learning. In applying active learning pedagogy techniques, these techniques will be more effectively applied to improve the achievements, interests and involvement of students (Sulisworo, Syriac. 2014).

The final product of this research is a junior high school lesson plan which implements jigsaw method. The criteria of the product, according to the material expert are as follows. The learning material quality falls into the category of good (70%) whereas the content aspect falls into the category of very good (90%). According to the curriculum experts, the learning material quality falls into the category of very good (90%) whereas the content aspect falls into the category of very good (89.5%). Meanwhile, in the trial, the scores are 78.6% (good) and 76.6% (good). From those evaluations, the average score is 80.1% or categorized as very good. The modification of the lesson plan was done based on the characteristics of junior high school students using the principles of lesson plan development with jigsaw method based on cooperative learning in big ball based games. The implementation of jigsaw method is expected to make students more

enthusiastic and to facilitate them to study in groups in the form of discussion about the materials being learned.

4 CONCLUSIONS AND SUGGESTIONS

4.1 Conclusions

This study reveals that jigsaw is a very useful technique. Through the use of this technique, students are encouraged to work with their peers, to learn from each other, to learn more, and to have good behavior towards one another. Observations made by researchers after the intervention also help most students to take an active part in the lesson by answering questions during and after the lesson. In particular, teachers must avoid using only the lecture method in teaching materials at a lower level because the students tend to have low participation and low understanding on the concept. Teachers should be given the opportunity to decide the teaching methods to be applied in the classroom to help the students understand the concepts. The Ministry of Education must conduct frequent in-service training for teachers in various schools, especially on completion methods.

This research produces a lesson plan for junior high school students which implements jigsaw method. The evaluation score falls into the category of very good (82.5%) from the material expert, very good (89.75%) from two curriculum experts, and good (77.60%) from the trial for teachers.

4.2 Suggestions

Based on the results of the research, following are some suggestions. 1) Teachers should be able to improve their creativity so that the teaching and learning process at school is not monotonous and they can use various learning models in the 2013 Curriculum; 2) The next researchers can do modification and development toward the research which are proper and can be practiced or tested; 3) Teachers of the colleges of education should be altering the teaching method they use for teaching the subject so as to improve students' understanding and performance; 4) It may be necessary to evaluate students' reasoning ability to know how grouping for cooperative learning strategy can be adopted so that every student would be able to get benefits from it.

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