Developing Physics education sets for senior high school based on CPS models using PQ4R strategy for dynamic fluid

Rio Wiharza* and Ahmad Fauzi
Department of Physics, Faculty of Mathematics and Natural Sciences, Universitas Negeri Padang, Jl. Prof Hamka, Padang 25131, Indonesia

*riowiharza@gmail.com

Abstract. Education sets is once of education source that can help teacher and students in learning to increase their competence. It can do by using creative thinking skill and using education sets involve Syllabus, RPP, LKS, dan assessment tools based on Creative Problem Solving using PQ4R strategy. In learning, we can create character of students, especially save energy character. Respondent in this experiment are student class XI IPA 1 SMAN 1 Airpura. Instrument to collect data is questionnaire using Likert scale. Based on preliminary observation, attitude student analysis competence 89,07 (very good), knowledge 76,80 (very good), skill 73,67 (good). SKL analysis 76,66 % (very good), learning analysis 74,16 % (good), save energy analysis 48,30 % (not good). Depend on that case, we need to create education sets based Creative Problem Solving models using PQ4R strategy which can support in learning and good comprehension about saving energy.

1. Introduction
Education is conscious effort to developing potency of student. Curriculum was developing base on learning, potency of region, culture, and students characteristic, but the most important of that all is character and potension of culture. Character depend on education of value, moral, disposition to explore students ability to make disposition about good or bad, maintain good things and realize in life.

The hot issue in this time is energy, especially energy crisis. Energy crisis can make chaos in government, public, and economy. Crisis energy can be cause of character of people which use energy wasteful. Based on this case, we must train people especially student to make saving energy character, cause they are the next generation in this world. As a teacher, we need education sets in learning that can create and support students to understand and practice in life about saving energy.

In learning we need a model to make it be effective, creative dan innovative. The model is Creative Problem Solving (CPS) model. This model emphasize problem solving skill based on systematic phase using divergent thinking skill, make student to be effective, creative dan innovative. To make better for creative thinking skill of student to find concept, teacher must be a facilitator in learning, so student can solve problem systematically. Teacher can use PQ4R strategy in learning. This strategy can make learning be better, create learning environment more active, and information process more details.
In fact, there was no education sets that used Creative Problem Solving with PQ4R strategy at dynamic fluid material. Usually, education sets that used in learning just explain about physic material, teacher didn’t explore it. Especially education sets that can integrated physics material in life that can create saving energy for student.

This education set is create to solve that problem. Education sets consist of syllabus, RPP, LKS and evaluation tool based on dynamic fluid material. Education sets arranged systematically, clearly, specifically to give chance for student explore thinking skill and at last can create saving energy character in student activity.

Based on explanation on the top, the research will do is make physics education sets for senior high school for dynamic fluid using Creative Problem Solving collaborate PQ4R strategy.

2. Method
Research method is Research and Development (R and D). This method is to create product and test effectively of the product. The model is four-D (4D), start from define, design, develop and desseminate. Produce of the research is a phisics education sets that using Creative problem solving model collaborate PQ4R strategy. The phisics education sets will tested vallidity, practicality and efficently so at the end will be an education sets that have best quality and make learning be better and quality. But in this case, just explane until define step of four-D.

Technique for collecting data is using questionnaire. Cause questionnaire is the most efficient method collect data and measure variable that needed from student. Type of data is primer data. It take from students questionnaire. The research do at SMAN 1 Airpura class XI IPA.

Preliminary/define data analysis consist of base ability of student (attitude, knowledge, skill), SKL analysis, learning analysis and saving energy understanding using Likert scale. It conversion using format:

- Very good
- Good
- not good
- bad

| No. | Score | Category |
|-----|-------|----------|
| 1   | 76 – 100 | Very good |
| 2   | 51 – 75  | Good     |
| 3   | 26 – 50  | Not good |
| 4   | 0 – 25   | Bad      |

3. Result and discussion
Based on preliminery analysis, basic ability of students in attitude 89,07 (very good), knowledge 76,80 (very good), skill 73,67 (good). SKL analysis is 76,76 % (very good), learning analysis 74,52 % (good), saving energy understanding 48,30 % (not good). Basic abilities are used to see student’s initial knowledge before an experiment is carry out. The results of student’s basic are on a good and very good scale. SKL analysis is used to know minimum competency measure that students must archive after attending a learning process in a particular educational unit, the results is very good.

Learning analysis ared used to know learning activities in the class, students and teacher activities, the results are good. Saving energy understanding is used to know concept understanding of students about how to do saving energy in life, the results are bad. Based on the data, the research will make an education sets that can support saving energy understanding concept.
4. Conclusion

To prevent energy crisis, the character is one of the most important to create. Based on analysis, saving energy analysis is not good. Saving energy character must be included in learning. Cause of that, it needs to include at education especially for students. So, the research of developing physics education sets based on creative problem solving using PQ4R strategy for dynamic fluid can make an understanding for saving energy for the future.

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