An Implementation of 7E Learning Cycle Model to Improve Student Self-Esteem

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Abstract. One of the affective factors that affect student learning outcomes is student self-esteem in mathematics, learning achievement and self-esteem influence each other. The purpose of this research is to know whether self-esteem students who get 7E learning cycle model is better than students who get conventional learning. This research method is a non-control group design. Based on the results obtained that the normal and homogeneous data so that the t test and from the test results showed there are significant differences in self-esteem students learning with 7E learning cycle model compared with students who get conventional learning. The implications of the results of this study are that students should be required to conduct many discussions, presentations and evaluations on classroom activities as these learning stages can improve students' self-esteem especially pride in the results achieved.

1. Introduction
Mathematics is one of the basic science that is widely used in various fields of science. According to Schoenfeld, In addition as a foundation of science. Mathematics is also seen as a helper for other sciences, especially in the development of science. However, mathematics is one of the subjects that students find difficult, even some students think that math is creepy. [1] defines that learning math is related to what and how to use it in making decisions to solve problems.

One of the things that influence student learning result of mathematics is affective factor. Affective factors are about attitudes, interests, emotions, values of life and students' judgment of things, in this case is the subject of mathematics. One of the affective factors that influence student learning outcomes is student self-esteem in mathematics. Students with high self-esteem will look confident, optimistic and always be positive about everything, also against the failures it faces. [2] says that there is a relationship between student self-esteem and student achievement. From various studies, self-esteem and student achievement influence each other. But the reality based on the results of research [3] found that self-esteem students need to be improved. Based on the results of questionnaires from four schools using coopersmith self-esteem. It is known that the majority of students have low-grade self-esteem.

7E Learning cycle model is a learning model based on the theory of constructivism and developed by Karplus in the 1960s. Constructivist theory has the view that knowledge is constructed by the self by the student in his mind. Such knowledge is built by a person as a form of adaptation to the experience he gained from the environment [4]. The view indicates that the student who became the center of learning (student centered).
The effort to build knowledge by the students themselves will certainly find difficulties, this is where the teacher acts as a facilitator by providing assistance to students so they can build knowledge. The role of the teacher can be done by creating an atmosphere that supports learning, providing meaningful and appropriate information to students, giving them the opportunity to discover or apply their own ideas and by teaching students to be alert and conscious using their own learning strategies [5].

Learning using 7E learning cycle model involves deductive thinking activities. Students are directed to think from the common things then conical to a more specific concept. This learning has seven stages of implementation, that is elicit (engages in the initial knowledge the students have about the material to be taught), engage (attracts students’ interest and attention to the teaching materials), explores (students investigates matters relating to teaching materials) Explain (students explain what is obtained from the results of his investigation to others) elaborate (students apply the knowledge they acquire to solve problems), extend (students broaden insights about teaching material / knowledge that has been obtained), and evaluate (assess the extent of knowledge that has been Obtained students).

Based on the description on the background of the problem, the problem in this research is formulated into question. the question as follows: are self-esteem students who get 7E learning cycle model is better than students who get conventional learning?

2. Method
The method used in this study is a quasi-experimental method. The use of this method is to study the effect of independent variables on the dependent variable. [6] argues, “the experimental research is the result of independent variables, and we see the results on the dependent variable”. The research design used in this study is "Nonequivalent Control Group Design”. In this design the experimental group and the sample group was not chosen randomly. This study was conducted in junior high school.

The instrument used in this study include: non-testing instruments that are used in the form of a questionnaire. Questionnaire is the kind of evaluation that a list of statements or questions that are answered by the respondents with regard to attitude, assignment, presentation, aspirations, facilities, learning environment and others. Data obtained from the questionnaire nontes attitudes toward 7E learning cycle model. The questionnaire used in this study was a questionnaire enclosed with the Likert scale as the measurement scale.

The data will be analyzed in this research is qualitative data. Qualitative data obtained from non-test data is in the form of a questionnaire filled out by the student attitude after getting 7E learning cycle model. These data are then processed and analyzed in order to provide a real picture of the problems studied.

Analysis of data obtained from the non-test questionnaire attitudes. To describe the results of a questionnaire, the students of learning are used, determining the percentage of all students on each item and the data is first changed from the ordinal data to the interval data by using MSI (method of successive interval) and then testing the normality and homogeneity as well as testing the difference of two averages.

3. Result and Discussion
Differences test was conducted to determine whether there are significant differences in self-esteem of students who get learning with 7E learning cycle model using microsoft exel 2010 and SPSS 16 for windows. From normality test results obtained that the value of Shapiro-Wilk for both classes is 0.459 and 0.286> α = 0.05. Thus H₀ is accepted. This means that the students' experimental class and control class data are normally distributed. Normality test results are presented in the table below in table 1:
Table 1. Self-esteem normality test

| Class     | Shapiro-Wilk Statistic | df  | Sig  |
|-----------|------------------------|-----|------|
| Experiment| .969                   | 33  | .459 |
| Control   | .960                   | 31  | .286 |

After the data are known to be normal distributed, then the homogeneity test is done. Then from the homogeneity test results obtained value of $0.856 > \alpha = 0.05$. Thus $H_0$ is accepted, meaning the variance of the self-esteem score of the students of both homogeneous classes. Homogeneity test results are presented in the table below in table 2:

Table 2. Test homogeneity self-esteem

| Levene Statistic | df1 | df2 | Sig  |
|------------------|-----|-----|------|
| .033             | 1   | 62  | .856 |

After the data is known to be normal and homogeneous distributed then tested the difference of two average that is t test and from the test results in the know sig. (2-tailed) of 0.838 which shows smaller results than the significance level $\alpha = 0.05$ set. This results in $H_0$ being accepted, meaning that there is a significant difference in self-esteem of students who are learning with 7E learning cycle model compared to students who have received conventional learning. The t test results are presented in the table below in table 3:

Table 3. Self-esteem t test

| Sum of Squares | df | Mean Square | F     | Sig  |
|----------------|----|-------------|-------|------|
| Between Groups | 8.915 | 1 | 8.915 | .042 | .839 |
| Within Groups  | 13220.835 | 62 | 213.239 |     |      |
| Total          | 13229.750 | 63 |      |      |      |

From the percentage of each indicator on the scale of self-esteem, the percentage of confident indicators on their ability is 60%, the percentage of indicators confident in themselves in communicating is 64.5%, the percentage of indicators are confident of their strength and weakness is 58.6%, the percentage of taste indicator proud of the results achieved 77.8%, the percentage of self-confidence indicator that he needed someone else is 63% and the percentage of self-confidence indicator that he is worth is 63.8%. This shows that the highest self-esteem indicator is a sense of pride in the results achieved. Some of the questions are i am proud to get the highest score in the repeat wake up flat side room and I am proud to be able to answer the question in the intelligent meticulous, especially the material of building the flat side space between schools. This shows that high self-esteem will look full of confidence, optimistic and always be positive towards everything and student self-esteem will influence to improve student's learning achievement.

Self-esteem is a person’s self-esteem positiveness expressed in one’s attitude [7]. The point is how individuals judge their own nature and personality. According to [8] states that self-esteem is a self-assessment that someone did against him based on previous experience. If the experience is low as a low sense of competence and feel unacceptable to others, then the individual is classified as low self-esteem. Furthermore, according [9], self-esteem or commonly called self-esteem includes feelings such as whether the individual can accept success or failure as well as some efforts he did, whether the failure will be painful or not. And whether the individual is better able to deal with the consequences of his experience. This is in line with [10] statements which suggest that low self-esteem has a detrimental effect on student achievement. Learning achievement and self-esteem influence each other. This means that if the student's learning achievement increases then the student self-esteem increases, otherwise increase student self-esteem will affect the increase student achievement. [2] says students with high self-esteem will look confident, optimistic and always be positive about everything, also
against the failure that it faces. This means that from this study it can be concluded that students who see themselves as weak and unable to do anything, are unattractive, disliked and deprived of their attractiveness are students with low self-esteem and they tend to be pessimistic about life and opportunity faced him. From the results of this study can also be concluded that the scientific approach to the current trend, from the stages of 7E learning cycle model is seen that with 7E learning cycle model, students are required to construct their own concepts to be studied. Students will also be used to finding problem solving strategies provided by teachers. In the exploring stage, students do a discussion with their friends, one group, at this stage students are required to interact with friends so as to improve self-esteem. Then in the explain stage, students are required to be able to present the results of discussion so that self-esteem increased. In addition, at the evaluate stage, students can do self-assessment to know the advantages and disadvantages of self during learning. That way students can assess themselves in the learning of mathematics so as to optimize self-esteem.

4. Conclusion

Based on research data and data analysis and hypothesis testing in this study, it can be concluded that self-esteem students who get learning with 7E learning cycle model is better than students who get conventional learning and the highest self-esteem indicator is a sense of pride in the results achieved. The implications of the results of this study are that students should be required to conduct many discussions, presentations and evaluations on classroom activities as these learning stages can improve students’ self-esteem especially pride in the results achieved. Recommendation from the result of this research is the 7E learning cycle model can be used in learning mathematics as an alternative to facilitate student in benefit of material and improve self-esteem student.

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