THE COMPARISON BETWEEN STAD AND TGT ON STUDENTS ACHIEVEMENT AND MOTIVATION: SENIOR HIGH SCHOOL

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ABSTRACT

This study compares two strategies in Cooperative Learning (Teams Games Tournaments [TGT] and Students Team Achievement Division [STAD]) in term of mathematics achievements of senior high school students. Slavin (1983) claims in STAD students’ motivation in learning fostered by focusing on cooperation between members of different teams. Sharan (1980) and Johnson & Johnson (1993) found that STAD is an ideal framework when the goal is mastery the content and has been shown by research to increase students’ achievement. Two grade X classes participated in the study. Both of them were taught using Cooperative Learning, while one class taught by using TGT other class taught by using STAD and getting homework. Evaluation of students’ achievement was conducted by post-test administered in every meeting except on the tournament or quiz. Students’ motivation and perception about mathematics was collected before and after the treatment. The result of this study show how teaching methodologies could influence students’ achievement, motivation and perception about mathematics.

Field of Research: Cooperative Learning, Students’ Achievement, Students’ Motivation.

1. Introduction

Mathematics become one of scared subject for several students because several concepts in mathematics ask them to analyze and thought abstractly. Suhendro (2006) said that there are several factors that could influence students achievement in mathematics, one of them is teaching strategy that used by teacher. Many teacher still used direct instruction to deliver mathematical learning concept (Bernero, 2000) and it make only few of learning process really happen on students (Stein, 2001).

2. Mathematics Teaching Strategy

Many mathematics teachers teach practically by giving the formula without any open discussion how the formula developed and used nowadays. In the earlier observation, student’s difficulties resolved after getting explanation from their friends. Probably it
decreases students’ level of stress that happen while they learned with their teacher. One of
learning strategy that promotes cooperation between students are students team learning
(STAD and TGT). Lasley and Matczynki (1997) said that TGT and STAD are extremely
useful when teachers are requiring students to focus on skills and content material that are
clearly define and on dealing with question that have relatively discrete answers for
example, mathematics.

3. STAD and TGT

The usage of STAD and TGT not necessarily replace direct instruction as the teaching
strategy but accustom teaching strategy that promotes cooperation or collaboration of
students. Good teaching strategy probably could influence students’ motivation to learn
mathematics. Chen (1999) stated learning process would be happen if each student
constructs their own knowledge not by remembering or permeate the given knowledge
from their teacher.

4. Research Question

Does students team learning (TGT and STAD) influence students achievements in learning
mathematics (logic topic)? Is there a relationship about students’ achievement and
students’ motivation on students team learning group? This study finds out the influence of
STAD and TGT on students achievement in learning mathematics and the relationship
between students achievement and students motivation.

5. Theoretical Framework

There are two kinds of motivation (intrinsic and extrinsic). Hakim (2004) defines
motivation as support that could influence people to do something to achieve several goals.
Five factors of motivation were measured on the motivation scale: self efficacy, cooperative
learning strategies, mathematics learning value, goal and learning environment.
Cooperative Learning (CL) formally called students-team learning is the term used to
describe instructional procedures whereby learners work together in small groups and are
rewarded for their collective accomplishments (Cruickshank, 2009). Purpose in CL is to
cause students to work together for both the individual and common good (Cruickshank,
2009). The characteristics of CL are heterogeneous group, group task, member help each
other and shared equally of group reward (Cruickshank, 2009).
6. Methodology

6.1 Sample and data collection method

This study use quasi-experimental design where two groups’ students are getting two different treatments. Population of this study is 6 class of grade X Public Senior High School of 71 Jakarta. Sample of this study is 2 class of grade X Public Senior High School of 71 Jakarta. Essay question were developed to measure students’ motivation and questionnaire to measure students motivation.

6.2 Instrumentation

Essay questions were developed to measure students’ achievement in logic topic in pretest and posttest. Thirty four statements developed used Likert-type statement using 5 point scales with strongly agree and strongly disagree at the extreme, adaptation from Wyk (2012) questionnaire to measure students’ motivation.

7. Finding & Discussion

7.1 Reliability analysis

According to Tuan, Chin and Shieh (2005), students’ motivation scale has good internal consistency, with a Cronbach alpha coefficient reported of 0.80. In the current study, the Cronbach alpha coefficient was 0.932.
7.2 Descriptive statistics & analysis

<table>
<thead>
<tr>
<th>Tests of Normality</th>
<th>Kolmogorov-Smirnov²</th>
<th>Shapiro-Wilk</th>
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</thead>
<tbody>
<tr>
<td>IMPROVEMENT SCORE</td>
<td>STAD</td>
<td>TGT</td>
</tr>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
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<tr>
<td>STAD</td>
<td>183</td>
<td>18</td>
</tr>
<tr>
<td>TGT</td>
<td>126</td>
<td>29</td>
</tr>
</tbody>
</table>

* Lilliefors Significance Correction

Sig value (Kolmogorov-Smirnov statistics) more than 0.05 indicates normality of the distribution improvement score for both groups.

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<thead>
<tr>
<th>Descriptive Statistics</th>
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<tbody>
<tr>
<td>CLASS</td>
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<tr>
<td>-------</td>
</tr>
<tr>
<td>STAD</td>
</tr>
<tr>
<td>POSTTEST</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
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<tr>
<td>TGT</td>
</tr>
<tr>
<td>POSTTEST</td>
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<tr>
<td>Valid N (listwise)</td>
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In the output presented above, there is improvement score for both groups (STAD and TGT), where mean differences between pre test and post test on STAD group is higher than TGT group.

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
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<tbody>
<tr>
<td>IMPROVEMENT SCORE</td>
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Significant value in Levene’s test is more than 0.05, it means the variances for the groups are same.

<table>
<thead>
<tr>
<th>Test for Equality of Means</th>
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<tr>
<td>IMPROVEMENT SCORE</td>
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</table>

Significant value (2-tailed) column is above 0.05, it means there is no significant difference on students achievement between two groups.
The relationship between students motivation and students achievement was investigated using Pearson Product Moment Correlation Coefficient. There was very small negative correlation in STAD group between two variables, \( r = -0.082, n = 18, p < 0.005 \) with high levels of students motivation associated with lower levels of students achievement. There was very small positive correlation in TGT group between two variables, \( r = 0.033, n = 29, p < 0.005 \) with high levels of students motivation associated with high levels of students achievement.

### 8. Conclusion and Future Recommendation

Students couldn't connect the dot the topic and logic topic. The findings of this study revealed the difference between groups in term of students’ achievement in the improvement score was not significant. It's probably influence by content material, learning habit, mark orientation and level difficulties of the problem constrain.

### Acknowledgement

This paper is under scholarship of the university.

### References


