

**EXPERIMENTATION OF MATHEMATICS LEARNING BY USING  
COOPERATIVE MODEL TYPE *TWO STAY TWO STRAY* (TSTS) ON THE  
SUBJECT OF A CIRCLE VIEWED FROM STUDENT'S CRITICAL  
THINKING ABILITY IN GRADE VIII OF SMP N 1 SURAKARTA**



**RESEACH PAPER**

**Submitted as a Partial Fulfillment of the Requirements**

**For Getting Bachelor Degree of Education**

**In Mathematics Department**

**by**

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**MUHAMMADIYAH UNIVERSITY OF SURAKARTA**

**2013**

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**RESEARCH PAPER**

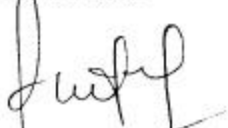
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## TESTIMONY

Herewith, I testify that in this research paper, there is no plagiarism of the previous work which has been raised to obtain bachelor degree of a university, nor there are opinions nor masterpieces which have been written or published by others, except those in which the writing are referred in the manuscript, mentioned in literary review and bibliography.

Hence, later if it is proven that there are some untrue statements in this testimony; hence I will hold full responsibility.

Surakarta, March 2013



Niken Dwi Andhika

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**MOTTO**

**“There is a will there is a way”**

(Researcher)

**“Back all your problems to Allah”**

(Researcher)

## DEDICATION



This research paper is dedicated to:

- ? My best gratitude to my beloved father **Bapak Muhadi** and mother **Ibu Kartini**, for the love, prayer, trust, financial, support, all sacrifices and guidance given to me.
- ? My lovely old sister **Dhika** and young brother **Hawik**, for love, support, and for everything that given to me.
- ? My big family in Pati, thanks for pray and support that given to me.
- ? My beloved “**Didik Cahyo Mariyanto**”, who makes me happy from 2008 until now, thanks for his support, motivation, advice, pray and love. *“I love you so much”*.
- ? My beloved friends in Senior High School, all members of ‘**KOPONK**’ thanks for the laugh, share, and critic.
- ? My beloved friends in boarding house (**Reka, Nia, Anita, Mifta, Susan, Arin, Alfi, Rohmah and mb.Tika**), thanks for support, laugh, and motivation for me.
- ? My beloved friends in RSBI Class of mathematics, thanks for support, laugh and motivation for me.

## ACKNOWLEDGMENT

*Assalamu'alaikum Wr. Wb*

*Alhamdulillahirobbil'alamin*, all praise belongs to Allah SWT due to blessing and mercies that have been given to the writer, so can complete this research paper entitled **'EXPERIMENTATION OF MATHEMATICS LEARNING BY USING COOPERATIVE LEARNING TYPE *TWO STAY TWO STRAY* (TSTS) ON THE SUBJECT OF A CIRCLE VIEWED FROM STUDENT'S CRITICAL THINKING ABILITY'**

The writer realizes that this research paper is still far from being perfect, so all suggestions and criticism for improving this reserch are accepted happily.

In conducting this research, the writer gets some helps from many people. Obveiously, there are honorable people who deserve her special gratitude for their help to the researcher. The researcher wishes to thank:

1. Drs. H. Sofyan Anif, M.Si. as the dean of School of Teacher Training and Education of Muhammadiyah University of Surakarta,
2. Dra. Sri Sutarni, M.Pd. as the chief of Mathematics Department,
3. Rita P. Khotimah, S.Si. M.Sc. as the consultant who has patiently and kindly given additional idea, advice, correction, help and guidance to the completion research paper,
4. All the lecturers at Mathematics Department of Muhaammadiyah University of Surakarta,

5. Dra. Hj. Sri Suwartinah, M.Pd. as the headmaster of SMP Negeri 1 SURAKARTA for giving the writer permission to have research in his institution,
6. Mulyadi, S.Pd. as the Mathematics teacher of SMP Negeri 1 SURAKARTA for giving information and allowing the writer to observe the teaching-learning process,
7. All of the people who help the writer in finishing the research paper that can not be mentioned one by one.

The writer realizes that this research still has many mistakes. Therefore, she accepts gratefully every suggestions, criticism, and comment from those who concern to this research. Hopefully, this research will be able to give contribution and be useful for the readers especially for those who are interested in similar study.

*Wassalamu'alaikum Wr. Wb*

Surakarta, March 2013

Author



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## SUMMARY

**Niken Dwi Andhika, A410090076, EXPERIMENTATION OF MATHEMATICS LEARNING BY USING COOPERATIVE MODEL TYPE *TWO STAY TWO STRAY* (TSTS) ON THE SUBJECT OF A CIRCLE VIEWED FROM STUDENT'S CRITICAL THINKING ABILITY ON GRADE VIII OF SMP N 1 SURAKARTA. Research Paper. Muhammadiyah University of Surakarta. 2013.**

The purpose of this study are : (1) to analyze and examine the difference effect of using cooperative learning model type TSTS and conventional learning model to student's mathematics achievement, (2) to analyze and examine the difference effect of student's critical thinking ability to the student's mathematics achievement, (3) to analyze and examine interaction effect of using learning model and critical thinking ability of students to student's mathematics achievement .The population in this study are all students in VIII grade in SMP N 1 SURAKARTA 2011/2012 school year. Samples taken in this study are VIII G class as experiment class that given TSTS learning model and VIII H class as control class that given conventional learning model. The sampling technique used in this study is cluster random sampling. Collecting data method are used test method, questionnaire method, and documentation method. Data analysis technique using two-way analysis variance with unequal cell, a prerequisite are need before, using the *Liliefors* test analysis method to test normality and *Barlet* method to test the homogeneity. From the analysis of the data with significance level 5% satisfied that: (1) There is no difference effect of using cooperative learning model type TSTS and conventional learning model to student's mathematics achievement with  $F_A=1,51$ , (2) there is difference effect of students' critical thinking ability to student's mathematics achievement with  $F_B=8,18$ , and (3) there is no interaction effect between learning model and student's critical thinking ability with  $F_{AB}=0,46$ .