

Implementation of student team achievement division (STAD) in the English course for the mechanical engineering department

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Abstract – This study aims to increase the participation and learning achievement of English through the implementation of cooperative learning models of the Student Teams Achievement Division (STAD) type. This type of research is Classroom Action Research (CAR) which is carried out collaboratively with peers. This research was carried out in two cycles consisting of 4 stages, namely planning, implementing, observing, and reflecting. The subjects of this study were English lecturers and second-semester students consisting of 29 persons. Data collection methods use subjective tests and observations. Subjective tests are used to measure learning achievement while observation sheets aim to observe the activities of students and lecturers. Quantitative data were analysed using quantitative descriptive, while qualitative data were analysed qualitatively qualitative. The results of the study obtained the initial data of students considered as a complete category as many as 5 people or the percentage of classical completeness of 17.24%. In the first cycle, students considered as a complete category as many as 9 people with a percentage of classical completeness of 31.03%. While the second cycle is the number of students considered as a complete category as many as 24 people, with a percentage of classical completeness of 82.76%. The conclusion of the results of the research carried out, namely the application of cooperative methods STAD type in the learning process can improve student participation and learning achievement in English language course in the mechanical engineering department.

Keywords: STAD, learning achievement, classroom action research, student participation

1. Introduction

The development of science and technology in the future is very rapid. One of the access in accelerating mastery and transfer of knowledge and technology is mastery of language, especially English as one of the International languages. Therefore, mastery of the English in the academic world, at the level of polytechnics for example, greatly determines the quality of human resources and academic life that are directly involved in the process of mastering science and technology itself, namely students and lecturers. Academic development at the student level, in the education system, is anticipated by providing general English language course at each semester in each study program at Politeknik Negeri Banyuwangi, especially Mechanical Engineering Study Program.

English is one of the general basic courses given in the first three semesters of Mechanical Engineering Study Program. Through this course, students are expected to have the ability to communicate both verbally and in writing properly and correctly and are able to use and apply it as a communication tool for science and development of science and technology, especially mechanical engineering.

The importance of the English as an access to master the development of science and technology is still not fully realized by Mechanical Engineering students. This can be seen from the teaching and learning process of the English in the classroom, where students seem less enthusiastic, a little lazy to do the assignments, some are still talking to themselves and not paying attention to the material provided so that it has an impact on the lack of student participation in the classroom and low student learning outcomes.

One of the causes of the above problems is that the teaching and learning process of the English course has been using conventional methods where the teacher only delivers the material through presentations and assigns assignments to students. When learning takes place students are no more just scrutinizing and listening to the material presented. When giving the task at the end of the learning session, it turns out that only a small part can complete the task correctly.

Referring to above problem, the teacher becomes the main focus because whether or not learning objectives are achieved depends on how the teacher plans, implements and evaluates the learning process according to the needs of the students. In learning planning, teachers should be able to sort out, choose and use learning methods that are appropriate not only to the characteristics of their students but, also with the learning objectives and material.

Considering the problems mentioned above include: 1) the lack of interest and motivation of students towards learning English, 2) the concentration of students is less focused on the material presented by the teacher in each English language learning, and 3) student participation is still low, it is necessary to apply interactive learning methods that can maintain the enthusiasm and interest of students to learn in order to increase student participation and learning outcomes. This is in line with what Higgins conveyed (in O'Connell, 2007: 85) which states that students will be able to understand and interpret concepts that are learning objectives if students are actively involved in ongoing learning.

One learning model that involves students actively in the learning process is a cooperative learning model. A cooperative learning strategy is a group learning strategy that has recently become a concern and is recommended by educational experts to be used (Sanjaya, 2009: 240), one of which is the STAD model. STAD is one of the simplest cooperative learning models and is the best learning model for beginners for

new educators using cooperative learning models (Slavin, 2008: 143). Learning by applying STAD cooperative learning model begins with presenting the material followed by students working in groups of 4-5 people. Each group must be heterogeneous, consisting of boys and girls, come from various tribes, have high, medium, and low abilities (Isjoni, 2007: 143). This learning model allows students to exchange ideas, coordinate, and help each other in completing tasks. This certainly can foster students' motivation to jointly discuss and understand the material presented so as to improve learning outcomes. With the STAD type learning model, students are not only able to understand difficult concepts but, also foster cooperation, critical thinking, and willingness to help friends (Nur, 1996, cf. Merawati, 2017).

Based on the description above, the purpose of this study is to increase the participation and learning outcomes of students by implementing the STAD learning model in the English language course in the Mechanical Engineering department.

2. Method

This study uses Classroom Action Research (CAR) whose main characteristic is the repeated actions with the main method is self-reflection in order to improve the learning process in the classroom, using a minimum of 2 cycles. According to Oja and Smulyan (in Suyanto, 1997: 17), the form of classroom action research is divided into four, namely: (1) teachers as researchers, (2) collaborative classroom action research, (3) simultaneous integrated, and (4) experimental social administration. In this study, researchers used a form of collaborative classroom action research, namely research involving the classroom teacher itself assisted by other teachers in observation. In this case, the researcher acts as a teacher and is assisted by colleagues as observers.

This classroom action research is planned to be carried out in two cycles, where each cycle consists of four stages, including; 1) planning, 2) implementation 3) observation, and 4) reflection phase (Kemmis and Mc Taggart in Ministry of National Education, 2005; 30). This research was carried out at Mechanical Engineering Study Program, Politeknik Negeri Banyuwangi. The subjects in this study were 28-second semester students. The type of data in this study is quantitative data and qualitative data. Quantitative data is obtained through test results at the end of the action, while qualitative data is obtained through observation sheets.

Data collection was carried out in two ways, namely: tests to determine the increase in students' abilities during the learning of the English which was given at the end of each action (cycle) (Pantanemo et al, 2014). By looking at the final test results of students, it can also be known in student learning achievement after participating in English learning. Observations are made during learning activities throughout cycle 1 and cycle 2 (Pantanemo et al, 2014; Wajdi, 2018). Observation is carried out with the aim to measure/know the behaviour of individuals in this case students and teachers during the learning process takes place by filling in the observation format prepared by the researcher.

Data analysis techniques used in analysing the data obtained from the test results, quantitative data obtained from the results of the percentage of students' success in completing individual tasks. The success of classroom action research can be seen from the indicators of student learning achievements, namely the absorption of at least 70% of each individual and at least 80% of classical learning completeness of the number of students available.

Table 1 Criteria for achieving pre-action stage

Interval Class	Category	The number of students	Percentage
86-100	Excellent	1	3.5 %
70-85	Good	4	13.8 %
56-69	Fair	9	31%
41-55	Poor	11	37.9%
≤ 40	Fail/Bad	4	13.8%

Based on the above criteria, it can be seen from the description of student learning achievements in the pre-action stage as follows.

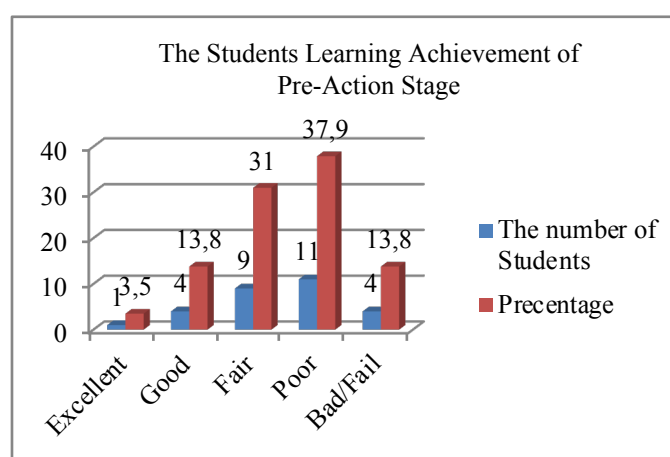


Figure 1 Achievement Criteria of Pre-Action Stage

2. Cycle I

Data obtained at the pre-action stage is used as a reference to carry out the actions in the first cycle, with the aim of obtaining an increase in the value of learning achievement. The activities carried out in the first cycle are as follows.

a. Planning

After obtaining a clear picture of the state of the class, the researcher designed the action to be taken to improve learning achievement, the preparations include the following steps:

- Determining and preparing teaching materials
- Preparing Learning Implementation Plan (RPP) using a Student Teams Achievement Division (STAD) cooperative learning model
- Preparing learning media.
- Making a list of student groups by ranking the pre-test score of students then dividing them into 6 groups.
- Making Student Worksheets (LKM)
- Making an observation's sheet to monitor the activities of teachers and students.
- Arranging and preparing test questions for students.
- Conducting simulations/exercises on the implementation of the Student Teams Achievement Division (STAD) learning model.

b. Implementation of Cycle I

The implementation of Cycle I was held twice with a post-test at the next meeting.

c. Observation

The results of observations in the first cycle of the teacher can be obtained an overview of the ability of the teacher (researcher) in conducting the learning process, namely from the 12 components observed there is no less value while there are as many as 5 components categorized as fair and good value as many as 7 components. Meanwhile, the observation of 10 aspects of student activities in the learning process show 6 aspects categorized as sufficient and 4 aspects categorized as good.

The comparison of Pre-Action values with cycle 1 can be seen from the following table.

Table 2 Comparison of Score between Pre-Action and Cycle 1

Observed Aspects	Score of Pre-action	Score of Cycle 1
The highest score	88	90
The Lowest score	30	50
The Average score	56.82	64.79
The number of students considered as complete category	5	9
The number of students considered as incomplete category	24	20
Percentage of students considered as complete category	17.24 %	31.03 %

Based on the data above, the score of students in the pre-action and the score of students in the first cycle has increased. However, in the first cycle students who got a score of 70 were only 31.03%. From a total of 29 students, there were only 9 students whose grades met the completeness criteria.

d. Reflection on Cycle 1

Based on the results of the implementation of Cycle I during the teaching and learning activities take place obtained the shortcomings that must be addressed in Cycle II are as follows: 1) Lack of readiness and sincerity of students in participating in learning activities using STAD model. 2) Students' attention to teaching and learning activities is still lacking. 3) Some students are less enthusiastic about answering the questions given. 4) The motivation of students to be active in teaching and learning activities is still lacking.

3. Cycle II

Cycle II is a follow-up of the first cycle. The purpose of the second cycle is so that the results obtained by students can meet the specified success criteria, namely, at least 75% of the students get a value of ≥ 70 . Like the first cycle, the second cycle is also carried out based on procedures of the research namely planning, action, observation, and reflection.

After implementing the STAD cooperative method in teaching and learning activities, the final step is to provide a test to re-evaluate the effectiveness of the STAD model in the classroom with the results of observations of the teacher and the learning

process in the second cycle. The results of observations of the teacher obtained an overview of the ability of teachers (researchers) in conducting the learning process in the second cycle, it is known that from the 12 components observed, there are 5 components as good value and as many as 7 components considered as very good value. The results of observations about student learning are obtained as follows: from all aspects (10 aspects) learning shows 2 aspects that are categorized as fair, 4 aspects that have got good grades and 4 aspects that are categorized as very good.

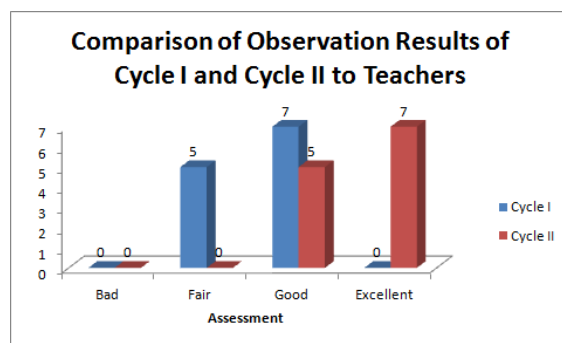


Figure 2a Graph of Comparison of Observation Results of Cycle 1 and 2 to Teachers

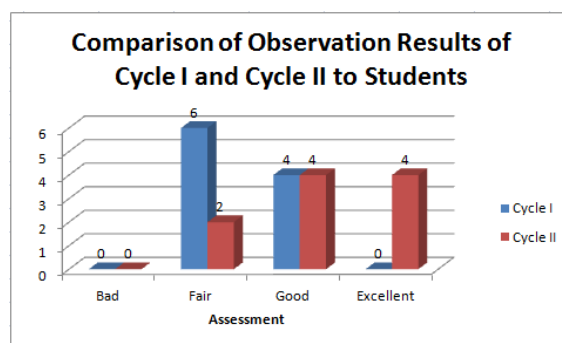


Figure 2b Graph of Comparison of Observation Results between Cycle I and Cycle II to Students

In the graph above, it can be seen that the results of observations of the teacher in cycle I have 5 components with fair categories and 7 aspects with good categories. In the second cycle, the results show an increase where 5 components are good value and 7 aspects have very good value. The same thing is also indicated by the results of observations of students. 6 aspects of assessment with sufficient categories in cycle I, 4 aspects up to become good categories. Meanwhile, the 4 components that were good in the second cycle shows an increase in a very good category.

The implementation of the second cycle refers to the improvement of the shortcomings of the first cycle, there are several aspects of improvement from the second cycle including 1) student learning outcomes, the average value increases from 64.79 in the first cycle to 74.51 in the second cycle, 2) the number of students categorized as complete criteria has increased more than doubled to 24 students or in other words the percentage of classical completeness increased from 31, 03% to

84.61%, 3) the enthusiasm of students increased which is affected by the increase of student participation in the learning process, can be seen from the decrease in the number of students which is not complete from 20 to 5. The comparison of student score in cycle I and cycle II can be seen from the following table.

Table 3 Comparison of Cycle I and Cycle II Values

Observed Aspects	Score of Cycle 1	Score of Cycle 2
The highest score	90	93
The Lowest score	50	63
The Average score	64.79	74.51
The number of students considered as complete category	9	24
The number of students considered as incomplete category	20	5
Percentage of students considered as complete category	31.03 %	82.76 %

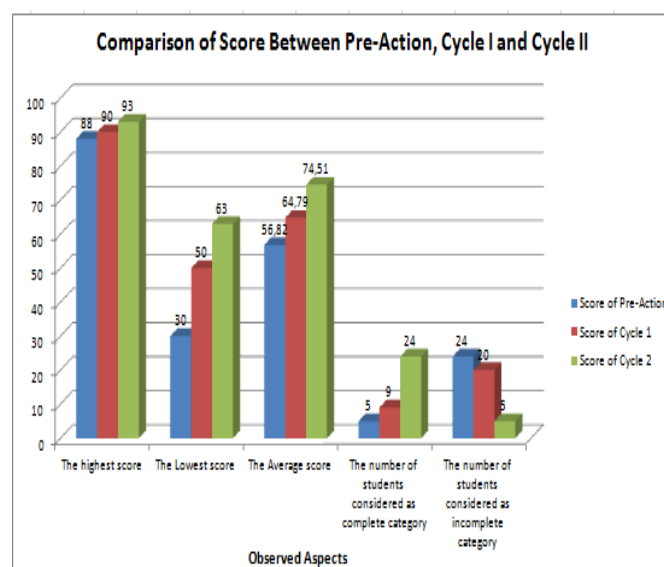


Figure 3 Graph Comparison of Pre-Action Values, Cycle I, and Cycle II

Meanwhile, there are significant changes starting from the pre-action phase to the first cycle until the second cycle. The increase occurred in all aspects from the highest value from 88 to 93, the lowest value from 30 to 63, the average value from 56.82 to 74.51, and the number of students who is considered as complete criteria from 5 to 24. In addition, the number of students who is considered as incomplete criteria dropped from 24 to 5 students. This comparison can be seen in the graph below.

After seeing the results achieved in the second cycle, it can be ascertained that by using STAD method in learning especially English, it can increase student participation and student learning achievement with the achievement of 82.76%

completeness. This is in line with the statement found in Hasyim (2017) which states that STAD is considered capable of increasing learning activities and interactions by still establishing social relations among students. With these results, classroom action research is no longer continued to the next cycle.

4. Conclusion

Based on the results of research and discussion, conclusions can be drawn, namely, the application of cooperative methods of STAD in the process of learning English can increase student participation and student learning achievements of the second semester at the Mechanical Engineering Study Program. This method can foster an attitude of responsibility and be able to improve students' skills in discussing and working together in understanding concepts and solving problems.

This research can be a guide for teachers in implementing STAD model cooperative learning in teaching and learning activities at school. The results of the study of Implementing of Cooperative Learning Model of Student Teams Achievement Division (STAD) can be a consideration for teachers as an alternative method of teaching so that it can improve learning processes as well as increasing student participation and student learning achievements.

The researcher also invites the teacher or instructor to conduct classroom action research using STAD type learning models with different subjects and different subjects/subjects or can apply other learning models to improve student learning outcomes.

References

- Arikunto, S. (2012). *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara. Edisi Kedua.
- Depdiknas. (2005). *Kurikulum Tingkat Satuan Pendidikan*. Direktorat Pendidikan Nasional.
- Hasyim, A. (2017). The Implementation Student Team Achievement Division and Talking Stick. *Classroom Action Research Journal*, 1(4), 156-161
- Isjoni. (2007). *Saatnya Pendidikan Kita Bangkit*. Yogyakarta: Pustaka Pelajar.
- Kurnia, YR., & Erawati, NLE. (2018). Teaching reading in junior high school. *Journal of Applied Studies in Language*, 2(2), 102-108. doi:10.31940/jasl.v2i2.1064.
- Lastari, NKH. & Saraswati, PRTAKH. (2018). The use of mind mapping to improve writing skill of the eighth grade students of junior high school. *Journal of Applied Studies in Language*, 2(2), 144-150. doi:10.31940/jasl.v2i2.1057.
- Merawati, J. (2017). Learners' models enhance the development of learners' reading and thinking strategies. *Journal of Applied Studies in Language*, 1(1), 1-6. doi:10.31940/jasl.v1i1.654
- Merawati, J. (2017). Learners' models enhance the development of learners' reading and thinking strategies. *Journal of Applied Studies in Language*, 1(1), 1-6. doi:10.31940/jasl.v1i1.654.
- Nunan, D. (1992). *Research Methods in Language Learning*. Cambridge: Cambridge University Press.
- Nur. (1996). *Model Pembelajaran*. Jakarta: PT. Rineka Cipta.
- O'Connel, S. (2007). *Introduction to Problem Solving*. Portsmouth: Heinemann
- Pantanemo, D., Saneba, B., Palimbong, A., Berry, A. (2014). Pembelajaran Kooperatif Tipe STAD Untuk Meningkatkan Hasil Belajar Siswa pada Pembelajaran IPS di Kelas IV SDN Inpress Kautu. *Journal Kreatif Tadulako Online*, Vol.2 No.2 ISSN 2354-614X.
- Parlina, R. (2010). *Penerapan Pembelajaran Kooperatif Model Think-Pairs-Share (TPS) Untuk Meningkatkan Aktivitas Dan Penguasaan Materi Akuntansi Siswa Kelas X Jurusan Akuntansi SMK Muhammadiyah Cawas Kabupaten Klaten*. Unpublished Thesis, Universitas Sebelas Maret Surakarta.

- Rakhmawati, F. & Nirmalawati, W. (2017). Grammar teaching at pre-service training program in Kampung Inggris (a case study on mastering system program). *Journal of Applied Studies in Language*, 1(1), 7-14. doi:10.31940/jasl.v1i1.655.
- Richards, JC. & Rodgers, T. (1986). *Approaches and Methods in Language Teaching*. NY: Cambridge University Press.
- Sanjaya, W. (2009). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana.
- Slavin, RE. (2008). *Cooperative Learning Teori Riset dan Praktik*. Bandung: Nusa Media.
- Subiyanto, P., Suciani, NK, Aryana, INR., Sukerti, GNA., & Sitawati, AAR. (2018). Learning and growing: an alternative strategy to teach English. *Journal of Applied Studies in Language*, 2(2), 170-175. doi:10.31940/jasl.v2i2.1080.
- Suyanto. (2004). *Pedoman Pelaksanaan Penelitian Tindakan Kelas (PTK)*. Yogyakarta: Dirjen Dikti.
- Wahyudi, A. (2014). *Penggunaan Model Pembelajaran Kooperatif Tipe Student Teams Achievement Division (STAD) Untuk Meningkatkan Keterampilan Berhitung Pecahan Siswa Kelas IV SDN Baturan 1 Gamping Sleman*. Yogyakarta: Universitas Negeri Yogyakarta. Tesis Tidak Diterbitkan.
- Wahyudi, EB. (2011). *Penerapan Model Pembelajaran Kooperatif Tipe Student Teams–Achievement Divisions (STAD) Untuk Meningkatkan Pemahaman Konsep Matematika Pada Materi Persamaan Dan Pertidaksamaan Kuadrat Pada Peserta Didik Kelas X Teknik Komputer Jaringan (TKJ) Di SMK 45 Wonosari*. Unpublished Thesis, Universitas Negeri Yogyakarta.
- Wajdi, M. (2018). *Classroom Discourse: A Model of Classroom Language Research*. Surabaya: Jakad Publishing.