

Improving Students' Learning Achievement Through Think, Talk, and Write (TTW) Learning Model

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Abstract: This study was aimed to improve students' learning achievement on reinforced concrete construction in which the Pre-Determined Minimum Criterion of Standard Mastery (KKM) that had not reached through the implementation of Think Talk and Write (TTW) learning model. This research involved 31 students of SMK in Wonosari District, Gunung Kidul Regency, Yogyakarta. The research was conducted through Classroom Action Research (CAR) in which each cycle consisted of: (1) planning, (2) acting, (3) observing, and (4) reflecting. The data were collected through observation technique, questionnaires, and documentation analyzed through quantitative and qualitative descriptive techniques. The results showed that the TTW learning model significantly improved the students' learning outcomes which could be seen from the results of the percentage of students' learning mastery in the first cycle with a total number of 18 (58.06%) and the second cycle with a total number of 27 students (87.1%). Therefore, there was an increase of 25.8%. In addition, the TTW learning model was able to improve student's learning activities from the first cycle to second cycle with the average gain value of 0.3625 which indicated that the improvement of student's learning activities was in the medium category.

Keywords: Learning, think talk and write, learning achievement

Abstrak: Penelitian ini bertujuan untuk meningkatkan prestasi belajar konstruksi Beton Bertulang yang belum mencapai kriteria ketuntasan Minimal melalui penerapan model pembelajaran Think Talk and Write (TTW). Penelitian ini melibatkan 31 siswa SMK di Kecamatan Wonosari Kabupaten Gunung Kidul, Yogyakarta. Jenis penelitian yang digunakan adalah Penelitian Tindakan Kelas (PTK) satu siklus yang terdiri dari: (1) perencanaan, (2) pelaksanaan, (3) observasi, dan (4) refleksi. Teknik pengumpulan data yang digunakan adalah teknik observasi, tes angket, dan dokumentasi yang dianalisis dengan teknik kuantitatif dan kualitatif deskriptif. Hasil penelitian menunjukkan bahwa model pembelajaran TTW secara signifikan mampu meningkatkan pencapaian hasil belajar siswa. Hasil tersebut ditunjukkan dari hasil persentase ketuntasan belajar siswa pada siklus pertama dengan jumlah 18 siswa menunjukkan persentase sebesar 58,06% dan siklus kedua dengan jumlah 27 siswa menunjukkan persentase sebesar 87,1%, sehingga terdapat kenaikan 25,8 %. Selain itu, model pembelajaran TTW mampu meningkatkan aktivitas belajar siswa dari siklus pertama ke siklus kedua dengan nilai rerata gain yaitu, 0,3625 yang mengindikasikan bahwa peningkatan aktivitas belajar siswa berada dalam kategori sedang.

Kata Kunci: Pembelajaran, think talk and write, prestasi belajar

INTRODUCTION

Education serves prompted a change in order to increase the quality and public life. The effort to improve the quality of education is expected to implicate on improving the quality of human resources. A good education starts with learning quality so it can increase students' learning achievement. Efforts to produce learning quality approach could be done through the development of learning (Herrmann, Bager-Elsborg, & McCune, 2017; Barak, & Assal, 2018), learning strategy (Sun, et al., 2018) or the application of learning models (Ba° & Beyhab, 2017; Raufany, dkk, 2018).

One of learning models that was able to improve students' understanding, achievement, and to develop students' learning process is cooperative learning model (Eymur&Geba, 2017;Azizan, et al., 2018). One of the cooperative learning models that was potentially able to improve students' performance and achievement is Think, Talk, and Write (*TTW*) (Triana, dkk, 2017). This learning model of *TTW* was developed by Huinker and Laughlin (1996) in which the process of learning done by students was through thinking, speaking, and writing. This learning model can develop the ability of students' understanding and communication. This *TTW* learning model starts with the involvement of students in thinking or engaging in dialogue with themselves after a process of reading. Then, they were given a chance to speak and share an idea with friends and then write the results of discussion. This is much more effective if done in a group of heterogeneous students that consists of three to five students. All students were asked to read, make small notes, explain, hear and share their idea with friends and then express it in writing. This learning model was able to increase students's critical thinking (Lukman, 2u017) in understanding a learning material.

Ajaja & Eravwoke (2010) state that test scores of students'treated though this model was

significantly higher than students treated in a traditional way. One of cooperative learning that is able to be implemented by teachers is Think Talk Write (*TTW*) through three phases: Thinking, Talking, and Writing. These phases are closely related to the constructivism approach. Banikowski (1999) of the opinion that the practice of maintenance involves repetition of information in the students' mind. When students repeat the information, they can maintain it in their indefinite working. Three main activities in this learning model are also examined by some previous studies separately .

Based on interviews and observation done with the teacher in the department of reinforced concrete construction, the learning process had not been done optimally, because the teacher still experienced difficulty in teaching the concept of reinforced concrete to the students and in choosing a proper learning model in accordance with the condition of the students. Through the analysis of the questionnaires filled out by students of Class XI SMKN 2 Wonosari Gunung Kidul, it could be seen that students are still less enthusiastic about learning reinforced concrete construction. This was due to lack of understanding about the concept, motivation, and support of parents. The understanding of a concept was dependent on the way students learn a topic through a certain learning model or phases (Weaver, 2018). Based on the needs analysis, the selection of the right kind of learning model was an obstacle faced by teachers. This could lead to the low students' learning achievements. This problem was supported by the latest data. The number of students who were able to achieve the Minimum Criterion of Standard Mastery (*KKM*) with a score of >75 was only 8 students or 25.8% from 31 students in the class.

Based on that situation, researchers could draw conclusions that *TTW* learning model was able to overcome the problem of the low students' learning achievements. Based on the empirical

data and theoretical concepts presented, the purpose of this research was to apply or implement Think Talk and Write (TTW) learning model in order to increase students' learning achievements in terms of activity and learning outcomes students of reinforced concrete construction subject in the Class XI department of civil engineering SMK Negeri 2 Wonosari, Gunung Kidul.

METHOD

This research was done through *classroom action research* (Kemmis & McTaggart, 1988) as explained in Figure 1. This research was carried out in two cycles. Each cycle was done in one meeting and the test was conducted at the end of the cycle. One cycle consists of planning, acting, observing, and reflecting.

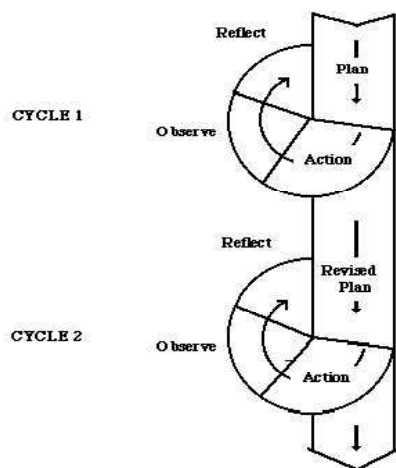


Figure 1. Spiral Model of Kemmis dan Mc Taggart (1988)

First: Planning

The steps were: (1) preparing the lesson plans with Think Talk and Write (TTW) (2) the formulation of students' work sheets in accordance with material given to the students and four students worksheets were prepared for each cycle (3) constructing three kinds of instruments namely observation sheets, questionnaire, and tests for each cycle.

Second: Acting

Operationally, the step was socializing the learning model that would implemented to students, learning resource, and evaluation system. Students were divided into heterogeneous students group that consisted of 3 – 5 students.

The next step was applying the Think Talk Write (TTW) learning model through the following steps: Step 1 – Thinking. Students were given a chance to think of learning material or answer questions asked by the teacher in terms of work sheet which was done individually. Step 2 – Talking. Students were required to be actively involved in group discussion about the worksheet provided. Here, students were expected to share their ideas with their group members. Step 3 – Writing. Here, students were required to write by using their own words and understanding as a result of group discussion. They were asked to show their writing in front of other students and the other students were required to provide critics and suggestions.

Third: Observing

Observing students' activities during the learning process as a result of the treatment given, writing down anything that emerged related to the implementation of the action through a diary, evaluating the results of the outcomes achieved during and after the implementation of the action including: tasks done by students, student learning achievements, and the students' responses towards the implementation of the action.

Fourth: Reflecting

Reflecting refers to thinking about the obstacles that led to low achievement in the observation phase. The results of the observation were analyzed find out the weaknesses that steps to improve it could be arranged.

This research was conducted in SMKN 2 Wonosari, Gunung Kidul in the Class XI with a total of 31 students, 15 boys and 16 girls. This research

was conducted for four months from April 2017 until July 2017 during the even semester of 2016/2017 academic year through descriptive qualitative and quantitative approaches. The descriptive qualitative method was done through the analysis of interview with a few informants which was then coded to draw conclusions (reflection) on the problems being researched. While, the quantitative method that used was the through the analysis of gain mean analysis (n-gain).

The data were collected through tests and non-tests by using observation sheet, questionnaire, and test instruments. The data of students' test results were analyzed by using a descriptive comparative technique with two criteria including individual and classical mastery. The individual mastery was calculated by using the following formula:

$$score = \frac{score\ of\ students}{maksimum\ score} \times 100$$

If the individual final score reached 75, it could be stated the the students reached the individual mastery. In addition, the classical mastery is calculated by using the following formula:

$$score = \frac{students\ achieving\ KKM}{total\ number\ of\ students} \times 100\%$$

The data the results of the interviews and questionnaires were analyzed through descriptive qualitative technique. While the results of observation were analyzed through gain mean test to see the improvement from cycle I to cycle II which was based on the category of n-gain. The gain was calculated by using the formula proposed by Hake (2001) with some modification:

$$\langle g \rangle = \frac{\langle S_f \rangle - \langle S_i \rangle}{S_{max} - \langle S_i \rangle}$$

S_f is activity average score in cycle II, S_i is activity average score in cycle I, and S_{max} is maximum score. The value of gain $\langle g \rangle$ was interpreted based on criteria of average gain score by Hake (2001) in Table 1.

Table 1. Average of gain score criteria

Average of Gain Score	Criteria
$g > 0.70$	High
$0.30 \leq g \leq 0.70$	Moderate
$g < 0.30$	Low

RESULTS AND DISCUSSION

Pra Cycle

Students' learning achievements about about the structure of reinforced concrete before the action was only 60.65 on average. The class condition before the implementation could be seen in Table 2.

Table 2. Students' achivement in pra-cycle

Criteria	Students' Achievement		Number
	Boys	Girls	
Reaching KKM	9.7%	16%	25.7%
Not reaching KKM	38.7%	35.6%	74.3%
Total	48.4%	51.6%	100%

Based on the condition above, the researchers conducted a class action research to improve students' activities and achievement about reinforced concrete construction through Think Talk and Write (TTW) learning model.

Cycle I

The first cycle was done in one meeting for 6 hours. The test about reinforced concrete structure was only done only at the end of the learning. The observation of students' learning

activity was done during the learning process, where students were required to finish a task given by the teacher, then the students were also required to present it in front of other students. The results of students' achievement can be seen in Table 3.

Table 3. Results of students' achievement in cycle I

No	Interval Score	Number of students	Percentage (%)
1	95-100	2	6.5
2	85-90	6	19.4
3	75-80	10	32.3
4	< 75	13	41.9
Total		31	100
Average		74.19	
Maximum		100	
Minimum		50	
Mastery		18	58.06

Cycle II

On the cycle II, the learning process through TTW was successfully implemented. There were some progress and improvement including: a lot of students were brave to ask a question, some were willing to present their result of discussion both in spoken and writing. The activity of that needed to be improved was team work. The results can be seen in Table 4.

Table 4. Result of students' achievement in cycle II

No	Interval of Score	Number of students	Percentage (%)
1	95-100	3	9.7
2	85-90	11	35.5
3	75-80	13	41.9
4	< 75	4	12.9
Total		31	100
Average		83.55	
Maximum		100	
Minimum		65	
Mastery		27	87.1

The results obtained from the cycle II suggests that the learning achievement was in line with the standard criterion of mastery that research ended on cycle II. The results of the research on cycle II increased significantly compared to those of cycle I.

Overall, the implementation of Think Talk and Write (TTW) learning model could improve students' learning achievement. It can be seen from the percentage of the minimum mastery criterion on cycle I that was 58.06% and 87.1% on cycle II, and therefore, the increase was 25.8%. The results indicate that the implementation of Think Talk and Write (TTW) learning model in the learning of reinforced concrete construction can improve students' learning achievements. This is in accordance with the results of the studies (Runanda & Siregar, 2017; Triana, dkk, 2017; Sari, 2016) that state that the cooperative learning model of TTW is able to improve high schools students' achievement. The improvement of the students' learning achievement was supported by the students' responses who stated that they found it easier to understand a concept of a topic being discussed because they were given the opportunity to think and understand the topic being discussed in which this understanding was then transformed in the verbal form, and finally described in the form of writing. This learning process was considered much easier by them in mastering a topic related to reinforced concrete construction. This is in with a statement stated by Waterman (2014) that by allocating structured timing for students to think, speak, and write, teachers can improve the quality of academic learning.

Besides the students' learning achievement, this model also made an impact on their activities. The students learning activities were observed based on five indicators: complex thinking, information processing, effective communication, team work, and

effective reasoning. Based on the observation done on cycle I and II by the observer on the activities of learning cycle, it could be said that there was an increase in each cycle. The average score of the students' learning activity in cycle I was 74.19 and on cycle II it was 83.55. Therefore, there was an increase of students' learning activity from cycle I to cycle II falling into moderate category with the gain <g> of 0.3625 on average.

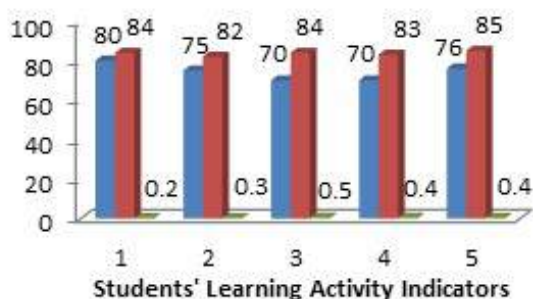


Figure 1. Achievement of students' learning activity cycle I (blue); cycle II (red); cycle III (green)

Figure 1 showed student's activities with indicators of 1: complex thinking, 2: information processing, 3: effective communication, 4: team work, and 5: effective reasoning. Based on Figure 1 about, it can be seen that the highest increase is in indicator 3 namely effective communication. The activities of this indicator include students were able to deliver an idea clearly in front of other students during the process of learning, students were engaged in question and answer session, students had good interactions with teachers and their friends. According to the interviews, students stated that they were more eager to deliver their ideas as the teacher gave them a chance to do. In general, the students' learning activities can be seen in Table 5.

The increase is also supported by the students' responses to the questionnaires. They thought that learning through TTW could give them

Table 5. Description of Students' Activity in Each Indicator

No	Indicator	Activity
1	Complex Thinking	Using different strategies to think in a complex way more effectively
2	Information Processing	Using different strategies to collect information from various sources of information effectively
3	Effective Communication	Delivering ideas clearly in front of other students
4	Team Work	Making an effort to reach the mission of the group
5	Effective Reasoning	Understanding their own thinking pattern

an opportunity to work in team and collaborate to learn a certain topic. The contribution of this TTW learning model in increasing the activity of students is in line with research conducted by Rizal (2018). His research shows that the TTW learning model is very influential to increase the students' activity in learning process.

The data taken from the students' responses showed that the factors that cause of the students' low learning achievements were internal and external factors. The internal factor refers to the motivation within students themselves because of lack of support from parents to learn at home, while external factor refers to teachers who do not choose a learning model appropriately. The students under this study also stated that they became much more enthusiastic as the teacher was applying the TTW learning model.

CONCLUSION

Based on the results and discussions, it could be concluded that the TTW learning model was able to improve students' learning achievement in the department of reinforced concrete construction. The achievements of the learning could be viewed from two aspects: students' learning achievement and students' learning activity. The students' learning activity increased significantly from cycle I to cycle II with the percentage of 25.8%. The increase can also be seen in the dimension of students' learning activity that shows the average gain $\langle g \rangle$ of 0.3625 which indicates that the increase falls into moderate category. These results were supported by students' positive responses vocational students towards the implementation of the TTW learning model.

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