

THE EFFECT OF TUTORING FOR NATIONAL EXAM PREPARATION TOWARDS TRY OUT'S SCORE BY DRILL AND PRACTICE METHOD AT MAN PAKEM

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Abstract

Having study on private or class tutoring besides mainstream schools has been commonly done by students. From that fact, this research was conducted to know the effect of tutoring for national exam preparation towards students' achievement which showed by Try Out's scores of students at MAN Pakem, Sleman, Yogyakarta. The tutoring was carried out by drill and practice method on chemistry subject. The hypotheses were test by paired T-test, since the data were normal. From the analysis data, it was found that the tutoring increased try out's scores of students at MAN Pakem, significantly.

Keywords: tutoring, drill and practice method, chemistry learning, national exam

INTRODUCTION

Exam is activity which undertaken to measure achievement of students' competence as an admission of learning achievement and/or completion of unit Education (Peraturan Pemerintah Republik Indonesia No 19, 2005). While, national exam (commonly abbreviated as UN in Indonesian) is standard evaluation system of primary and secondary education that made by the government to standardize quality of education levels among the areas in Indonesia. Controversy of national exam had appeared since the promulgation of law No. 20 of 2003 on National Education System which made the result of national examination as the sole determinant of graduation. Finally, based on various considerations, national exam will no longer be the sole determinant of graduation. Nevertheless, it should be passed by the students as one of determinant for graduating.

In senior high school, students of grade XII have a high pressure of having to prepare themselves for national exams, practice exams, and college selection. They require effective learning in order to cover all the things that are needed. Some of them choose to have the private or class tutoring as a solution. Most of private or class tutoring explicitly aims to

improve school grades and performance on standardized examinations (Zhan, et al., 2013). Both parents and students have high expectation in tutoring, besides schools. Other purposes of tutoring may include to improve confidence, expand friendship, change the atmosphere and, in some cases, increase the learning motivation. Thus, there are many ways in which tutoring can be "effective", and evaluation criteria might fit the motivations of the consumers.

Byun (2014) in his research concluded that tutoring which focused on test preparation made some difference in achievement gains, but that other forms of tutoring made little difference. Zhan, et al. (2013) had performed survey and interview about Hong Kong students' perceptions of the effectiveness of private supplementary tutoring relative to mainstream schooling. They generally perceive private tutoring and private tutors to be more effective in the provision of examination support compared with mainstream schooling and teachers. However, perceptions vary according to self-reported academic levels of students and motives for taking private tutoring.

Madrasah Aliyah Negeri (MAN) Pakem is a senior high school in Sleman, Yogyakarta

which implement Kurikulum Tingkat Satuan Pendidikan (KTSP). Learning based on KTSP can be defined as a process of applying ideas, concepts, and policies of KTSP in learning process, so that students must master the specific set of competencies, as a result of interaction with the environment. The implementation of KTSP can also be interpreted as an actualization operational curriculum in the form of learning. The curriculum is no longer using a learning approach that is dominated by teachers, but students should also be more active during the learning process. The implementation of KTSP today is dilemma, because the government is doing an initiation to implement the new curriculum, the curriculum 13 (K-13).

Regardless of the curriculum which used by each school, students are required to pass the national exam in order to graduate. In this regard, there are some obstacles faced by students of MAN Pakem in exam preparation, i.e. difficulties in understanding all the materials with limited hours of lessons, increase in anxiety and fear in the exam. This agrees with Nurlaila (2011) who said that the National Final Examination is one source of student anxiety. From all the subject that must be tested, chemistry is one of subject which was feared. Some of the obstacles facing students in exam preparation increased due to students' understanding of the chemistry material is still low. It is shown from the scores of try out (TO) that have an average about 24.2 from 100 point. Therefore, effort must be taken to improve the competence of students and provide motivation to decrease the level student anxiety.

From the discussion above, may be said that tutoring is one solution that can be done. The method of tutoring which can be used for this case is the drill and practice. In limited time, this method can cover all the material which must be master. Students were given the trick how to answer questions quickly. It is in accordance with the research of Nurhayati et al.

(2013) which showed that implementation of drill and practice method, effective to improve student achievement. Gee and Umar (2014) said that the implementation of drill and practice method on learning English increased students' achievement and motivation. Drill and practice can be exactly applied for material that need calculation, language foreign and material that need in increased vocabulary words. Chemistry has many formulas, symbols, and abstract concepts. Meanwhile, chemistry uses math. Therefore, the most suitable method is practice on answering question directly.

Drill and practice method is form of independent study whereby, after the teacher explains a task, learners practice it. For example, students are shown how to use the law of conservation of mass, they are asked to make calculations of reactant or product mass in a chemistry reaction. This method consists of five learning phases, i.e. (1) explanation of learning objectives, (2) demonstration of knowledge or skill, (3) guided drill and practice, (4) checking for understanding and giving feedback, (5) advanced drill and transfer of knowledge/skills (McDonough, 2005). With this method, it was predicted could be used to pursue the competencies that must be mastered by students of MAN Pakem in national exam. This research aimed to know the effect of tutoring by LBB Unisia (tutoring agency that be founded by Department of Chemistry Education, Islamic University of Indonesia) for national exam preparation of students at MAN Pakem.

HYPOTHESES

Hypothesis 1

H₀: Tutoring by drill and practice method for national exam preparation did not affect to students try out scores.

H_a: Tutoring by drill and practice method for national exam preparation affected to students try out scores.

Hypothesis 2

H_0 : There was no significant increase in try out's scores after applied tutoring by drill and practice method for national exam preparation.

H_a : There was significant increase in try out's scores after appl tutoring by drill and practice method for national exam preparation.

METHOD

This study is an experiment with one factors one variable design without control class. The one factor is the implementation of tutoring for national exam preparation by drill and practice method. The research was conducted in LBB Unisia and the subjects were students of natural science of class XII MAN Pakem. Instrument for this research was questions of try out, consist of questions before and after applying the tutoring. The questions were made according to basic competencies for national exam which included 8 (eight) competencies. Increased student achievement as indicated by scores of tryouts that were analyzed using normalized gain score (Hake, 1999), i.e.:

$$\langle g \rangle = \frac{\langle S_{post} \rangle - \langle S_{pre} \rangle}{100\% - \langle S_{pre} \rangle}$$

Where

- $\langle g \rangle$: normalized gain score
- S_{post} : score of try out after applying tutoring
- S_{pre} : score of try out before applying tutoring

The value of gain score categorized as follows:

- High : $g > 0.7$ or converted in percent $g > 70$
- Medium : $0.3 \leq g \leq 0.7$ or converted in percent $30 \leq g \leq 70$
- Low : $g < 0.3$ or converted in percent $g < 30$

Data analysis was performed by SPSS. Normality of the data was carried out by Kolmogorof-Smirnov test. The hypotheses were test by paired T-test since the data were normal.

RESULT

The increase of try out's scores before and after was presented in Figure 1. The gain scores of before and after tutoring shown in Table 1 and 2.

Table 1. Data of TO's Gain Scores

Student	Gain	Criteria
1	0.20	low
2	0.07	low
3	0.35	medium
4	0.59	medium
5	0.42	medium
6	0.14	low
7	0.33	medium
8	0.42	medium
9	0.21	low
10	0.60	medium
11	0.30	low
12	0.47	medium
13	0.29	low
14	0.28	low
15	0.32	medium
16	0.18	low
Average	0.32	medium

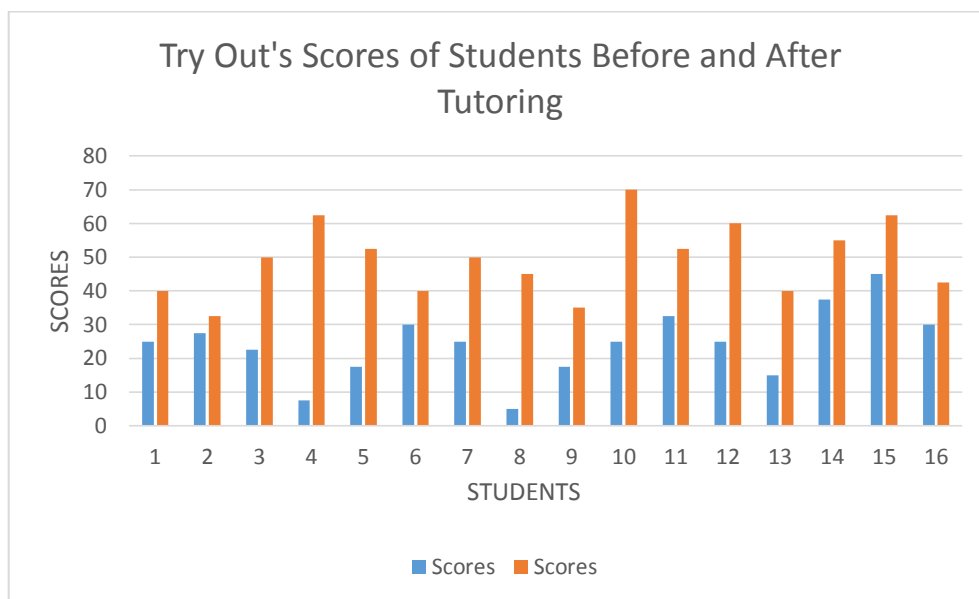


Fig. 1 Try Out's Scores of Students Before and After Tutoring

Table 2 Summary of Gain Score Analysis

	Before tutoring	After tutoring	Gain	Criteria
Highest Score	45	70	0.07	low
Lowest Score	5	32.5	0.6	medium
Average	24.22	49.38	0.32	medium

Gain	0
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Table 3. Criteria of gain score and the number of students

Criteria	Number of students
High	-
Medium	8
Low	8

Table 4. The Result of Normality Test

Data	Significance	Conclusion
Score before tutoring	0.875	Normal
Score after tutoring	0.762	Normal
Gain Score	0.2	Normal

Table 5. Hypothesis test by T-Test

Data	Significance
Score before-after tutoring	0

DISCUSSION

The tutoring process which was performed by LBB Unisia had been done in 8 (eight) meetings. Design of learning based on basic competencies on subject chemistry by drill and practice method. For each meeting, students were given a module. It contains learning objective and national exam's questions few years ago. The questions have been grouped as their suitability with the basic competencies. Besides that, it was added with questions that were predicted similar with questions that will come out in the national exam. With the modules, it was expected to build student's independence in learning chemistry, especially to resolve given problems. Furthermore, the modules were instructional media that were as supporter of

the learning process by drill and practice method, especially in phases 1, 3, and 5.

First phase in drill and practice is explanation of learning objectives. This is a phase that sometimes was overlooked by students or tutor. Learning objectives were precisely the motivation to learn that the most important. When students know the usefulness or skills that they have after studying of matter, they will automatically be motivated. But sometimes the explanation was less attractive and applicable, or rigid exactly as learning objectives according to basic competence itself. This phase is the time for students to build an assumption about the material will be studied, the learning process that will be passed, and even further the assumption of students to tutor. In this phase, students indirectly carried out an analysis of the tutor, materials, and the learning process to determine their trusting. The higher trusting level, then students' motivation to learn increased. It could help the transfer of knowledge and skills. This is in accordance with the research from Nurhayati et al. (2013) which found that learning process by drill and practice could improve student achievement in cognitive and affective aspects. Affective aspect consists of attitudes, interests, values, self-concept, and the moral of students.

Second phase is demonstration of knowledge or skill. In this phase, tutor gave the example of answering questions that were in modules. Students were given the trick to solve the questions quickly. Here, the role of tutor very important. The trick could not contain false concept or tutor must explained clearly in order to there was a misconception. The third phase is guided drill and practice. This is the main phase of the method. After students were given an example, they were asked to solve the similar question by themselves. It can trained agility and the ability of students to solve problems.

Fourth phase is checking for understanding and giving feedback. In this phase, it could be found the level of student's independent or the level of success in third

phase. Understanding can be checked by discussion about solving questions. It can be added by the direct questions for the students to explain their answer. Thus, it would be seen if there was a misconception. After checking, tutors must gave feedback. If there was not misconception, they must gave an affirmation. But, if there was a misconception, tutors must fixed the students' concepts then gave them an affirmation by solving the questions. Finally, the last phase is advanced drill and transfer of knowledge/skills. Students were asked to improve their ability with an advanced questions, studying and checking for the answer by themselves.

The first meeting, students were given try out. The scores were collected for S_{pre} or scores before tutoring. From the result, it was found that the level of understanding on chemistry matter for students of MAN Pakem was low. It was shown by the average score, i.e. 24.2. That, we could use for analysis the problems that were faced by students on preparing the national exam, especially on subject chemistry. Besides that, it was done an observation that in MAN Pakem that is a Madrasah Aliyah, there were several islamic subject. It differentiate with senior high school (namely Sekolah Menengah Atas). From that condition, the students of MAN Pakem needed learning method that was effective in limited time for preparing exams. Overall, students felt happy to be given tutoring by LBB Unisia. Besides they went to different places, except school, they felt happy because there was a new atmosphere. Perhaps, this can be used as refreshing from their activities at the school.

Three further meetings, the students are given tutoring for competency 1-4. Some of them find it difficult, some others have been able to adapt with the tutoring method. At the fifth meeting, students were given mid try out, it was used to check the progress and to find out if there was a misconception. Mid try out was the fourth phase of the drill and practice method from the whole of tutoring program. But the score of mid try out could not be

included in data analysis because it was too early to be used in making conclusions.

Two further meetings are tutoring for competency 5-8. Finally, the eighth meetings are used as final try out. Final try out's score was expressed as S_{post} or score after the applied of tutoring. To determine the increased of students' achievement on chemistry, it was calculated the gain scores of try out the beginning and final. From the calculation of the gain score, can be seen in Table 1, 2, and 3 that the criteria of increase try out's scores is medium. However all of students had increasing in scores. Furthermore, the analysis of data which used to prove the hypotheses.

Based on the result of the normality test using Kolmogorof-Smirnov test by SPSS (shown in Table 5), it could been seen that the significance value was more than 0.05. It showed that distribution of data was normal. Furthermore, the hypotheses test were performed by paired T-test. The result showed for the first hypothesis test had significance value of 0 or less than 0.05, it was mean that H_0 was rejected and H_a was accepted. Hence, it can be said that the tutoring for preparation national exam affected to increase the value of students. This goes along with research conducted by Byun (2014) which showed that tutoring affected the students' achievement and performance and Nurhayati et al. (2013) about the drill and practice method.

Data of gain were collected from the scores of try out before and after tutoring which presented in Table 1, were tested for normality using Kolmogorof-Smirnov test, and obtained the results as shown in Table 4. The result showed significance value more than 0.05 so the distribution of data were normal. In addition, hypothesis was test by one sample T-test with SPSS. Based on the result, it was found that significance value was 0, or less than 0.05, so H_0 was rejected and H_a was accepted. Therefore, it can be said that there was significant increase of students' scores tryout.

CONCLUSIONS

The results showed that the applied of tutoring which was held by LBB Unisia for national exam preparation by drill and practice method affected on try out's scores of students grade XII MAN Pakem, Sleman. In addition the tutoring significantly increased students' score on chemistry subject. Tutoring can be the way of effective guided studying besides mainstream schools.

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