

THE EFFECT OF DISCOVERY TECHNIQUE ON GRAMMAR MASTERY OF THE EIGHTH GRADE STUDENTS

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Abstrak: Penelitian ini dilakukan untuk mengetahui ada tidaknya pengaruh yang signifikan dari teknik *Discovery* (penemuan) pada penguasaan tata bahasa siswa kelas delapan. Penelitian Kuasi eksperimental dengan rancangan *non-equivalent pretest posttest control group* dipilih karena keterbatasan peneliti untuk mendapatkan sampel secara acak. Ada 58 siswa yang digunakan sebagai sampel penelitian yang diambil dari dua kelas, yaitu kelas 8H dan kelas 8I di SMP Negeri 1 Kampak pada tahun pelajaran 2014/2015. Data diperoleh dari kedua kelas tersebut, dimana 8H sebagai kelompok kontrol dan 8I sebagai kelompok eksperimen. Semua data diperoleh melalui tes yang kemudian dianalisa menggunakan uji t independen untuk membuktikan hipotesis. Hasil perhitungan dari uji t menunjukkan bahwa t_{hitung} 2,769. Sementara t_{tabel} pada tingkat signifikansi 5% menunjukkan nilai 2,003. Oleh karena $t_{hitung} > t_{tabel}$ hal ini berarti ada pengaruh yang signifikan dari teknik *Discovery* pada penguasaan tata bahasa siswa kelas delapan di SMP Negeri 1 Kampak pada tahun pelajaran 2014/2015.

Kata kunci: teknik discovery, pengaruh, penguasaan tata bahasa

ABSTRACT: This research was conducted to find out whether or not there is significant effect of Discovery technique on the eighth grade students' grammar mastery. Quasi experimental research with non-equivalent pretest posttest control group design was chosen due to the inability to take samples randomly. Taking two intact classes, eight H and eight I of SMP Negeri 1 Kampak in the 2014-2015 academic year, there were 58 students used as research samples. The data were taken from both classes where 8H was as the control group and 8I was as the experimental group. All the data taken by using tests then were analyzed. The independent t-test formula was applied to test the hypothesis. The result of t-test computation showed that t_{value} was 2.769. Meanwhile the t_{table} with the significance level of 5% was 2.003. Therefore, $t_{value} > t_{table}$ that means there is significant effect of Discovery technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year.

Keywords: discovery technique, effect, grammar mastery

INTRODUCTION

As one of important English language components, grammar must be mastered by every English language learners. Grammar constitutes rules of the way on using correct word forms to be put together in sentences to express meaningful utterances. Grammar concerns with how the words are formed and

changed in order to convey various meanings (Harmer, 2007: 32). Furthermore, grammar plays crucial roles in mastering the basic language skills. Having good grammar mastery allows students to comprehend spoken language easily, produce oral language clearly, and understand as well as transcribe written language effectively. In brief, grammar

enables students to possess good communicative competence.

Many English language learners, especially those who are not the native of English, find it hard to master grammar. It is different from the people who come from English speaking country who learn grammar of English as their first language. They master it without any hard effort, since it can be acquired naturally. Yet, when non English native speakers learn it as a foreign language, they will encounter several differences of grammar between their mother tongue and English. English and Bahasa, for instance, have different grammatical rules. While in English language there is tense which regulates the use of sentences based on the time of action, in Bahasa, there is no tense that can be found since there will be no changes among sentences which convey the different time of action. Thus, grammar becomes language hinder for students to master. Therefore, it is clear why many students fail in English grammar.

As the response of the situation dealt with difficulty in acquiring grammar, some experts have developed some strategies to aid the English language learners. There are various developments in teaching and learning grammar. One emphasized on developing teaching techniques, methods and approaches which are considered as one of causal problems.

As a result, grammar teaching has transformed from traditional method in which the grammar rules must be taught at first to the modern one in which the grammar rules are taught after context. This transformation is considered because presenting grammar rules without being followed by the use of it in the context will make the students only able to do grammar exercises, not to use it in the real communication. Patel and Jain (2008: 142) state that grammar cannot be taught in isolation, because it only enables students to decide whether their sentence is correct or not without understanding how to apply it in a real communication. That is why the transformation is expected to give positive influence to students' achievement.

As explained previously that grammar teaching has been developed that is indicated by the development of teaching techniques which consider the principles of it. One of the techniques is Discovery technique. Verner (2014) explains that Discovery technique is a method of teaching in which students are not directly presented with a target grammatical structure or rule. Instead, students are given content in which the target structure is used. Students then discover the grammatical rule or figure out the pattern for themselves. The teacher's role is to guide students to their own discovery, not to give students the

information on the grammar rule. Discovery technique includes a set of activity which leads students to discover the grammar rules by themselves through series of steps by using pictures and questions. It means that the students are given examples at first, and then they have to find out how the rules involving in the example work, rather than being told by their teacher. This technique is similar to inductive approach where the grammatical rules are generalized from the context given at the beginning of lesson. However, both are different on the way to find the rules. While in inductive approach there is not any limitation on how to guide the students to their discovery, but in discovery technique the process of the discovery is carefully guided and assisted by the teacher, and the rules are then elicited and taught explicitly (Ellis, 2002: 106). Thus, although the students find the grammatical rules by themselves, it is not solely they find it without any guidance from the teacher.

The main concept of discovery technique is leading students toward their discovery pertaining to grammar rules. Therefore, the most important point in teaching process is managing the students' concentration. As long as they concentrate fully, they can follow each step and finally reach the discovery. Since the teacher is able to manage the class and provide the

materials through attractive media, the students will never lose concentration. Therefore, the role of teacher and the function of media determine the successful teaching and learning process.

As mentioned in the previous section that grammar teaching which allow students to find rules by themselves is absolutely recommended, discovery technique, of course, has many advantages. Larsen and Freeman (2003: 42) report, "The advantages of this approach are clear. By involving the students' reasoning processes in the task of grammar acquisition, we make sure that they are concentrating fully, using their cognitive powers". Besides, there are other advantages of applying this technique in language class. Firstly, the students are actively involved in teaching and learning process, so that the students centered teaching is absolutely realized. Secondly, the students are motivated to find the rules by themselves. Harmer (2007: 82) states, "Discovery activities suit some students very well; they enjoy working things out". Thirdly, the students will not be under pressure of memorizing all grammatical rules, because the grammar rules can be learned through context. Fourthly, by using the attractive media, the students can easily not only memorize but also understand the use of grammar rules taught.

From the above elaboration, it can be assumed that teaching English grammar through discovery technique is one of the effective techniques. Thus, the researcher is interested in conducting a research to investigate the effects of discovery technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year. This mainly focuses on finding out whether there is significant effect of discovery technique on students' grammar mastery. In doing so, one research question is set to frame the study: Is there any significant effect of discovery technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year?

This research is worth conducting since it offers some significance both to teaching grammar theory and English teaching practice. The result of this research may add or strengthen the theory about teaching grammar by using discovery technique with suitable approach in order that the students gain deeper understanding. Practically, this technique can be used by English teachers who have problem in teaching grammar. By using discovery technique their students are expected to be able to get better comprehension and better achievement.

RESEARCH METHOD

The research was quasi experimental research where two groups were assigned as a control group and an experimental group. Marczyk et al (2005: 3) state, "In its simple form, experimental research involves comparing two groups on one outcome measure to test some hypothesis regarding causation." One group is given a type of treatment and other is not; and the last, both are given the same test to be compared whether there is an effect between both variables or not. Non-equivalent pretest posttest control group design was employed in this study to collect the data. The purpose of the pretest was to assess the knowledge of the students in both groups before treatment was conducted on them. Both groups under study should have the same ability in the mastery of knowledge of grammatical items selected. The posttest was administered to both groups after the treatment was given to the experimental group.

This study involved two kinds of variables, dependent and independent (Ary et al, 2002: 35). Independent variable happens before dependent variable and is hypothesized to affect the dependent variable. Since this study was aimed to know whether or not discovery technique influences the grammar mastery, it means the independent variable was discovery

technique while the dependent variable referred to grammar mastery. The independent variable, discovery technique, was manipulated by the researcher to be implemented in teaching grammar. Therefore, the implementation of discovery technique was hypothesized to affect the students' grammar mastery.

The population of this study was 231 students of eight grade of SMPN 1 Kampak in the 2014/2015 academic year. 58 students from 2 classes, Eighth H and I, were chosen as sample. Eighth H was, then, selected as control group and eighth I as experimental group by flipping the coin. Both groups were assumed having equal ability by which would be proven by the score of pretest and testing normality and homogeneity.

Both groups were given the same material of grammar, simple present tense, yet through different ways. Eighth I as experimental group was taught by using special treatment called Discovery technique; meanwhile Eighth H as control group was taught conventionally which focused on teacher centered teaching.

Data collection method employed in this study was test. A test is generally defined as a set of questions or activities that must be answered or carried out (Heaton, 1991: 5). By conducting test the researcher was able to measure the students' understanding pertaining to the

material delivered. In this case, the test was used to measure the students' grammar mastery before and after being given treatment in form of pretest and posttest. Further, the score of pretest and posttest were interpreted through criteria of achievement that ranges from very poor, poor, fair, good, very good and excellent.

Before being given to experimental and control group, pretest and posttest must fulfill the requirement of good test, whether they were valid and reliable or not. Test is valid if it measures what supposed to be measured, and it is reliable if it is consistent in measurement. Therefore, they were tried out to another class first to measure its validity and reliability. To test the validity of test, Pearson product moment formula was used. It was applied to measure the validity of each test item. The test was valid if r_{xy} is higher than r_{table} with level of significance 5%. Meanwhile, to test the reliability of test K-R20 formula was applied. If r_{ii} is higher than r_{table} , the instrument is reliable (Arikunto, 2010: 231). After the pretest and posttest were checked the validity and reliability, they were ready to be given to experimental and control group to measure their achievement pertaining to simple present tense mastery.

The pretest was given before teaching process while posttest was given after teaching process being held. After the

data pertaining to students' scores of pretest and posttest were gathered, the researcher conducted data analysis. However, before analyzing the data to test the hypothesis the researcher had to ensure that the sample of the study had fulfilled the requirements of good sample in which it must be normal and homogenous (Arikunto, 2010: 356). Therefore, firstly the researcher had to test the normality and homogeneity of the sample, and then analyze the main data by using t-test formula.

To test the normality of sample the researcher applied Chi-squared formula. Kothari (2004: 233) states, "Chi-square, symbolically written as χ^2 (Pronounced as Ki-square), is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance." The formula is presented below:

$$(\chi^2) = \sum_{i=1}^k \frac{(fo - fe)}{fe}$$

Meanwhile, the homogeneity of the sample was analyzed by using F test by dividing the highest variance to the lowest variance. The formula is as follows:

$$F_{value} = \frac{\text{highest variance}}{\text{lowest variance}}$$

After the sample had been determined its normality and homogeneity, testing hypothesis could be done through t-test formula. It was aimed to determine

whether or not there is a significant effect of discovery technique on students' grammar mastery. The t-test formula according to Arikunto (2010: 354) is as follows:

$$t = \frac{M_x - M_y}{\sqrt{\left[\frac{\Sigma x^2 + \Sigma y^2}{N_x + N_y - 2} \right] \left[\frac{1}{N_x} + \frac{1}{N_y} \right]}}$$

The result of t-test above would be analyzed by comparing t_{value} and t_{table} with the level of significance (α) 5%. The criteria are that null hypothesis (H_0) is refused when t_{value} is equal or higher than t_{table} ($t_{value} \geq t_{table}$). When the null hypothesis (H_0) is refused, the alternate hypothesis (H_a) is accepted. It means there is a significant effect of discovery technique on students' grammar mastery.

FINDINGS AND DISCUSSIONS

In this research there were three kinds of test result; tryout test, pretest and posttest. The tryout test was analyzed to measure the validity and reliability of test, the pretest result was analyzed for measuring normality and homogeneity of data, while pretest and posttest results were analyzed to test the hypothesis.

The tryout test was conducted to eighth F as try out class which consists of 29 students. Based on the analysis of validity and reliability, it was indicated that both, pretest and posttest, were valid and reliable. The coefficient scores (r_{xy}) of

all items of pretest and posttest were higher than r -table, 0.367. It means there were 20 valid test items of pretest and 20 valid test items of posttest which could be given to experimental and control group. Meanwhile, the result of reliability test of pretest showed that the coefficient score (r_{ii}) was 0.90. The r_{table} for $N = 29$ with level of significance (α) 5% is 0.367 that was less than coefficient score (r_{ii}). Therefore it was concluded that the pretest was reliable. Besides, the posttest was also reliable. The coefficient score (r_{ii}) of posttest was 0.91 that was higher than critical value of 0.367. To sum up, pretest and posttest as main instruments had fulfilled the requirement of good test for validity and reliability.

Pretest and posttest had already been checked its validity and reliability, therefore it could be given to measure the experimental and control group's achievement before and after being given treatment. The improvement indicated by the posttest result is described in the following chart.

Figure 1.
Posttest Result of Experimental and Control Group



Based on the result of posttest above, there was obvious improvement on both groups. It was interpreted to the criteria of achievement that ranged from very poor to excellent. However, the experimental group which accepted special treatment had more significantly improved. As mentioned in the previous section, the result of pretest was used to measure the normality and homogeneity of test. It should be ensured that the sample was normal and homogenous, so that the t -test could be applied. The normality and homogeneity were the requirement of sample to be employed in experimental research. Therefore, since the sample was normal and homogenous, it had belonged to be good sample.

The next data analysis was done to the result of pretest to test the normality and homogeneity of both groups, experimental and control group. The calculation of Chi Square (χ^2) of control group was -45.637, while Chi Square (χ^2) of experimental group was -254.767. Meanwhile, (χ^2) table with level of significance 5% was 7.815. Therefore, since (χ^2) value \leq (χ^2) table, it means that the samples of control group and experimental group were normally distributed. Meanwhile, the result of F test to determine the homogeneity of both groups was 1.038. It was lower than 1.87 or $F_{value} \leq F_{table}$ which showed that the

samples were homogenous at 95% significance level.

Testing hypothesis was done by applying t-test formula to find out whether or not there is significant effect of discovery technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year. It was done by analyzing data from pretest and posttest of both groups. It was known that t_{value} is 2.769 and t_{table} is 2.003 with level of significance 5%. Since $t_{value} \geq t_{table}$, the null hypothesis (H_0) is refused, and the alternate hypothesis (H_a) is accepted. It means that there is a significant effect of discovery technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year.

Data analysis above showed that there was obvious improvement of students' grade achievement before and after being given special treatment. In pretest, most students of experimental group by which 48.28% or 14 students achieved very poor achievement; and nobody achieved neither excellent nor good achievement. Meanwhile, after being given special treatment called discovery technique, their achievement was significantly improved. The posttest score showed that most of them gained good achievement; there were 37.93% of students; while there was only 1 student or

3.45% students who gained very poor achievement. Besides there was 1 student or 3.45% students who achieved excellent achievement and the others were very good and fair achievements.

In addition, the experimental group which was given special treatment showed higher improvement than the control group which was without being given special treatment. The mean difference between pretest and posttest of experimental group was 20.34 which were higher than in control group of 12.93. In addition the posttest score of control group showed that there were still 8 students or 27.59% students who got very poor achievement; 6 students or 20.69% who got poor achievement; 8 students or 27.59% students who got fair achievement; 1 student or 3.45% who got good achievement; 6 students or 20.69% who got very good achievement and nobody or 0.00% who got excellent achievement. It means that there is notable difference between group taught by discovery technique and other taught by conventional method.

The result mentioned above indicates that discovery technique is effective in teaching grammar. As students were given opportunity to explore their ideas in form of discoveries, they were much motivated to learn. The effectiveness of this technique is influenced by the

elements of language teaching applied; namely ESA (Engage Study Activate) (Harmer, 2007: 51). Since the students were really engaged in teaching and learning process, they could study how the structures were constructed and finally actively produced the language and its structures they were just learned. All those elements were effectively applied in discovery technique which caused it was effective in teaching grammar.

The fact that Discovery technique gave positive effect on students' grammar mastery is undeniably because of the principles of grammar teaching applied in it. As Thornbury (1999: 95) mentions the principles of grammar teaching in term of Efficiency and Appropriateness factor, in Discovery technique grammar is also presented as efficiently and appropriately as possible. Through Discovery technique grammar is taught efficiently. It does not take too long time to explain the rules, because it has been discovered by the students itself. Besides, it uses materials in form of pictures and simple questions which can be easily understood by the students. Furthermore, the materials can attract the students' interest, motivation, and attention in learning grammar. Therefore, the Discovery technique allows grammar teaching efficiently done. The next principle is appropriateness in which grammar teaching must be done as

appropriate as possible. Since discovery technique involves some attractive pictures and some simple questions, it is considered appropriate to be given the eighth grade students. At last, teaching grammar through Discovery technique has applied the principles of grammar teaching so that it enables students to learn successfully.

In addition, Discovery technique also followed the principles of current trends of grammar teaching suggested by Larsen and Freeman (2003: 44). Grammar is taught for communication. It is clear that Discovery technique allows students to learn grammar from context which enables students to be a good communicator, not grammarians. Further, since the students are required to predict related sentences based on pictures and questions given, the materials are presented in form of discourse, not isolated sentences. Moreover, the teacher gives full guidance for the students in order to be fluent in applying the grammar rules in context. Thus, all those principles have been effectively applied in teaching grammar through this technique.

Meanwhile, connecting to statement of Larsen and Freeman (2003: 42) that Discovery technique has advantage since it allows students to use their cognitive powers where they are required to concentrate fully, its implementation in the research shows a

great success. Students were enthusiastic to follow each step of teaching and learning grammar in the class. Since they have great curiosity about the grammar rules they have never found before, they were much motivated to find it by themselves. As all of students want to be great discoverers, they did concentration fully to the context provided by the researcher. As the result, their focus in the class is only on the learning materials and nothing else. Finally, the learning objectives could be achieved, so that their achievements were significantly improved.

CONCLUSION AND SUGGESTIONS

Based on the result of data analysis presented in the previous section, the researcher was able to answer the statement of the research problem pertaining to the effect of discovery technique on students' grammar mastery. It was concluded that there is significant effect of discovery technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year. The positive effect can be seen from the obvious improvement of experimental group's achievement on grammar and the t-test results of measuring mean difference.

Grammar achievement of experimental group students who received special treatment called Discovery

technique has increased significantly; even it is higher than in control group which is without special treatment. Since the Discovery technique involves elements of successful teaching and principles of grammar teaching, the students are able to learn grammar actively so that they can achieve the learning objective effectively. Moreover, the students were really engaged to the learning materials because they acted as language discoverers who made the decision. That is why they are so much motivated to learn, so that their achievement increases.

Besides, the significant effect was indicated from the result of t-test computation. The computation of difference between two means showed that t_{value} was higher than t_{table} in level of significance (α) 5% that means the null hypothesis is refused and alternate hypothesis is accepted. On the other word, there is significant effect of Discovery Technique on grammar mastery of the eighth grade students at SMPN 1 Kampak in the 2014/2015 academic year.

The result of this research supported the previous research conducted by AmbikaDyahYulistika entitled *A Comparative Study between Deductive and Inductive Technique to Teach Simple Past Tense on the Second Year Students at SMPN 1 TuguTrenggalek in the Academic year 2010/2011*. The previous research

which its variable, inductive technique, is considered close to Discovery technique showed the mean score of students taught by inductive technique was 11.8, while the mean score taught by deductive technique was 7.8. The t-table by using the degree of significance 5% with d-f 66 is 2.000. The t-score 2.067 was higher than t-table 2.000. It means that teaching grammar through inductive technique was more effective than deductive technique. It is clear that Discovery technique which has almost the same concept as inductive technique significantly affects students' grammar mastery.

Finally, it can be generally stated that the implementation of Discovery technique in teaching grammar brings positive effect on students' grammar mastery. As long as it can be applied gradually in every grammar teaching, the students' motivation to learn will be gradually aroused so that it can affect their achievements.

The result of this research is basically intended to improve teaching and learning activity as well as to add references in developing theories related to English teaching especially grammar teaching. Therefore, the researcher sincerely offers some suggestions for students, English teachers and future researchers for making better grammar teaching and learning.

The students are suggested to be more active in discovering language rules which are implicitly stated in the context. It is suggested not to be satisfied of being passive learners who learn only from what the teacher explains. It is better to try to criticize every single part of language which is learned, because actually the students are not only able to be learners but also excellent explorers and discoverers.

For the English teachers, it is suggested that applying students-centered teaching activity should be priority. The students need to be given chance to explore their capacity which is probably more than what we know before. Therefore, in order to let the students explore their capacity, the teachers have to provide the way in form of techniques or media which ease them to achieve the learning objectives. As long as the teachers can creatively design interesting lesson stages, the students can be really engaged in teaching and learning process and finally they can learn very well. Besides, the English teachers need to emerge students' belief that English is not difficult subject by creating English as a habit. The English teachers should give examples of using English in daily life such as using simple expressions with classmates, etc. If the students have been accustomed to the use of it, English teaching will not be a trouble anymore.

The last suggestion is purposed to the next researchers who want to conduct researches about teaching grammar. It is suggested to explore more about the effective methods and techniques which can be applied in language classrooms especially English as a Foreign Language. However, it should be appropriate to the principles of teaching grammar where the rules are not taught in an isolated way. Furthermore, the techniques and methods which consider fun learning activity are absolutely recommended.

REFERENCES

- Arikunto, Suharsimi. 2010. *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Ary, Donald., Jacobs, Chaser, Lucy. & Razavieh, Asghar. 2002. *Introduction to Research in Education*. Wadsworth: Thomson Learning.
- Ellis, R. 2002. Methodological options in grammar teaching materials. In Hinkel, E., & Fotos, S., (Eds.), *New perspectives on grammar teaching in second language classrooms*. New Jersey: Lawrence Erlbaum Associates, Publishers Mahwah.
- Harmer, Jeremy. 2007. *How to Teach English*. China: Pearson Education.
- Heaton, J.B. 1991. *Writing English Language Tests*. New York: Longman.
- Kothari, C.R. 2004. *Research Methodology: Methods and Techniques*. New Delhi: New Age International.
- Larsen, Diane & Freeman. 2003. *Teaching Language: From Grammar to Grammar*. Heinle & Heinle.
- Marczyk, Geoffrey., Dematteo, David. & Festinger, David. 2005. *Essentials of Research Design and Methodology*. Canada: John Wiley & Sons.
- Patel, M.F. & Jain, Praveen M. 2008. *English Language Teaching (Methods, Tools & Techniques)*. Jaipur: Sunrise.
- Thornbury, Scott. 1999. *How to Teach Grammar*. England: Pearson Education Limited.
- Verner, Susan. 2014. *The Discovery Technique For Teaching Grammar: Just Get Out Of The Way And See How Much Your Students Can Learn*. (Online), (www.busyteacher.org/20580-discovery-technique-teaching-grammar.html), retrieved on January 20th 2016).
- Yulistika, AmbikaDyah. 2011. *A Comparative Study between Deductive and Inductive Technique to Teach Simple Past Tense on the Second Year Students at SMPN 1 TuguTrenggalek in the Academic year 2010/2011*. Unpublished Thesis. Tulungagung: STKIP PGRI Tulungagung.