USING THE GROUP INVESTIGATION TECHNIQUE IN TEACHING READING COMPREHENSION

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ABSTRACT

This study was conducted to investigate the effect of Group Investigation Technique (GIT) for teaching reading to second grade students of private high school in Pidie Jaya. An experimental design was used and the data were collected through a test as the instrument. Two sets of tests (pre-test and post-test) in the form of multiple choice items were administrated. The population of this study was all the second grade students of the school, and two classes were taken as samples, one for the experimental class (EC) and one for the control class (CC), with 36 students in EC and 32 students in CC. The findings showed that the GIT used for teaching reading improved the reading comprehension scores of the students concerned. The EC students had higher reading scores ($\bar{x}$=77) than those from the CC ($\bar{x}$=64). The reading abilities of the students in the different classes were different as indicated by the z-score. The z-score showed that the result of the z-count was 4.29, while the result of z-table at the level of significance 5% (α=0.05) was around -2.04+2.04. This means that the z-count was higher than the z-table (4.29>-2.04+2.04). Therefore, the alternate hypothesis was accepted and the null hypothesis was rejected. In other words, it was concluded that the students taught with GIT got better results in reading than those who were taught using the standard individual reading activity method. English teachers are suggested to apply this technique in teaching reading.

Key Words: *Group Investigation Technique (GIT), Reading.*

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INTRODUCTION

Reading is one of the skills for learning English that enables students to get more knowledge since it provides a lot of information, ideas, news, and facts about what has happened in the past and about plans for the future. According to Richards (1997:15), "reading is what happens when people look at a text and assign meaning to the written symbols in that text". This means that students can obtain knowledge and experience by learning to comprehend the meaning of the whole sentences. Their comprehension of the text can be shown by answering questions about it. In addition, Bouchard and Spaventa (1984:151) reveal that reading can bring exciting dimensions into classes where English is taught as a foreign or second language since it gives students access to information written in English, and when it is combined with other English learning activities, it can provide fruitful practice for these other activities.

Furthermore, reading is important for everybody in order to deal with new knowledge in the changing world of this technological age. For both children and adults, the ability to read opens up new worlds and opportunities. Therefore, the School Based Curriculum (or *Kurikulum Tingkat Satuan Pembelajaran* - KTSP) standard competence for reading skills for grade two at senior high school in Indonesia wants students to be able to understand the meaning of simple short essays in report, narrative, and analytical exposition forms in daily life contexts to access knowledge (Depdiknas, 2006).

The results from a preliminary study showed that there were some problems in the teaching-learning processes for reading skills in a junior high school in Aceh. First, in the reading classes, the teachers mostly explained about the material without getting the students to participate. They just received information passively, listening to explanations from their teacher. During the learning process, there was no interaction between the students and their teachers to solve any problems faced by the students when reading the texts. Second, the vocabulary of the students was poor and this made it difficult for them to understand the texts. Third, the teachers got the students to work individually by giving them a text and then asking them to read and answer the questions from it. By working alone, the students found it difficult to comprehend the texts since they were not able to exchange ideas with their fellow students about the meanings in the texts. As a result, most of the second grade students were not able to achieve the

minimum required assessment score or minimum band score which is ≥78.

From the difficulties above, it can be seen that the low reading results of the students were due to lack of training in reading skills. Moreover, most of the learning materials in the reading lessons focused more on textbooks rather than on authentic materials. Accordingly, Nuttall (1996:172) claims that authentic texts can be motivating because they are proof that the language is used for real-life purposes by real people. Thus, the teacher needs to implement an appropriate technique for teaching reading to overcome these problems.

Slavin (1995:111) said that group investigation is a successful and extensively used learning technique that involves task specialization. It is an organizational approach that allows a class to work actively and collaboratively in small groups and enables students to take an active role in determining their own learning goals and processes. The Group Investigation Technique (GIT) requires the students to form small groups, to plan and implement their investigations, synthesize the findings from the members of the group who then make presentations to the entire class. Therefore, the researchers of this study assumed that the GIT could become the solution to solving the problems above.

Therefore, the research question in this study is: "Is there any significant difference in the reading comprehension skills, in terms of main idea, details stated, vocabulary in context, references and inferences, between students who were taught by the GIT and those who were taught by the standard technique that has been used up-to-now in the school?"

It is expected that the result of this study can be useful for English teachers in gaining understanding on the use and advantages of the GIT in teaching reading to their learners.

LITERATURE REVIEW

Reading Comprehension

Reading is one of the English skills that must be taught as it is central to the learning processes. It is an active process requiring skills, knowledge, and experience. Grabe and Stoller (2002:2) define reading as the ability to draw meaning from the printed page and to interpret the information appropriately. By reading, students gain important information that is not presented by teachers in the classroom because it provides a lot of knowledge, ideas, and inspiration. Therefore, reading

ability must be one of the goals of any ESL program.

Furthermore, Hennings (1999:2) defines reading as a thinking process that sets two people in action together: the author and the reader. The writers try to convey their ideas or messages in written form, while the readers try to obtain the messages from the text. Then, Linse (2006: 150) defines reading as a set of skills that involves making sense and deriving meaning from the printed word. Based on the definitions above, it can be concluded that reading is a complex cognitive process of decoding symbols in order to construct or derive meaning (reading comprehension). It is a means of language acquisition, of communication, and of sharing information and ideas.

Learning to read refers to reading for meaning or comprehension. Reading for meaning is essentially an attempt to comprehend texts. Comprehension is essential to the reading process. Someone is not really reading if he does not understand what he is reading. According to Sweet and Snow (2003:2), comprehension consists of three important elements. First, it involves the reader as the person who has to comprehend the text. When he reads a text, he should involve all of his capacities, abilities, knowledge, and experiences which support him to comprehend the text. The second element is the text. It is something that is read in order to comprehend it. The third element is the activity of reading, which includes why the reader is reading the text, how he comprehends the text, and what he learns after reading it. In short, it can be said that the main objective of reading comprehension is to be able to understand the reading passage such as: to understand specific information, identify the main idea, extract specific details, and understand specific words in their context.

The Group Investigation Technique

Killen (1998:99) says that the Group Investigation Technique (GIT) is one of the cooperative learning techniques which focuses on the participation and activities of students. Teachers who use this technique should divide the class into small groups. Each group usually consists of two to six students and may form around friendships or around an interest in a particular topic. Students select the topics for study, then every group decides what sub-topics are to be investigated as well as the goals of their study, and they then prepare and present a report in front of the class.

The GIT is considered as one of the techniques for cooperative learning that can be implemented in schools. It is a successful and

extensively researched cooperative learning technique that involves task specialization (Slavin, 1995). It allows students to be directly involved in how they obtain knowledge so that they are not merely recipients. It is a democratic approach in a classroom setting that gives more focus to the students.

Stages of the Group Investigation Technique

According to Sharan and Sharan (1992), as cited in Mitchell, et al. (2008:390), students' ability can increase through a series of stages in planning and carrying out the GIT. They are:

1. *Stage I:* Students choose topics and organize into research groups. In this stage, they scan sources, purpose questions, and sort them into categories. The categories become subtopics. They join the group to study the subtopic of their choice or the teacher's choice.
2. *Stage II:* Each group makes an outline about the topic that will be investigated. Group members plan their investigation cooperatively; they decide on what they will investigate, how they will go about it and how they will divide the work among themselves.
3. *Stage III:* Groups make their investigation. Group members gather, organize, and analyze information from several sources. They collect their findings and form conclusion. Group members discuss their work in progress in order to exchange ideas and information, and to expand, clarify, and integrate them.
4. *Stage IV:* Groups prepare for their presentation. Group members determine the main idea of their investigation. They plan how to present their findings. Group representatives meet as a steering committee to coordinate plans for final presentation to class.
5. *Stage V:* Groups are ready to present the presentation. Presentations are made to the class in a variety of forms. The audience evaluates the clarity and appeal of each presentation.
6. *Stage VI:* The final projects are evaluated by the teacher and students. Students share feedback about their investigations and about their affective experiences. Teacher and students collaborate to evaluate individual, group, and class wide learning. Evaluation includes assessment of higher level thinking process.

The explanation above is the stages of GIT which is usually implemented in the classroom activity during the teaching and learning process. Besides, it is also important for teachers to monitor student groups closely (Mitchell, et al., 2008). If a group member is not participating, the teacher may meet with the student individually. At

this time, he can offer helpful and encouraging advice on how to deal with the particular situation. He may also provide worksheets for students to record information such as group goals and progress. By asking students to record the group's plan, individual and group responsibility will be ensured.

Henceforth, it is can be said that the GIT can be helpful for teaching and learning reading skills, because it gives students the chance to work collaboratively in reading (Slavin, 1995). They will get more enjoyment by conveying their ideas and sharing information with each other. Moreover, it is expected that by implementing this technique, students, in their groups, can directly read about topics that are close to the things around them. Furthermore, they can improve their reading ability through discussing, investigating, presenting, and asking or answering questions. The technique not only works to increase their knowledge, but also develops their social skills which are very important for associating the meaning of texts with their life.

RESEARCH METHODOLOGY

This is an experimental quantitative research study. Gay (2006:233) states that experimental research is the only type of research that can test hypotheses to establish cause-effect relationships. It represents the strongest chain of reasoning about the links between variables. It is intended to obtain information on the effect of implementation of the GIT on the reading ability of second grade high school students from Madrasah Aliyah Dayah Jeumala Amal Bandar Baru which is located in Pidie Jaya, Aceh. The target population of this study was all the second grade students of the school as they are suitable to be the subjects for this research. The 36 students in class XI IPA 3 were the experimental class (EC) sample for this research. Class XI IPA 2 with 32 students was the control class (CC).

Procedure

In this study, the CC students were taught by an English teacher from the school by using the Grammar Translation Method, whilst the EC students were taught by the second author using the GIT. The data was collected through tests (pre-test and post-test) as the instrument. In the pre-test, the students were given 20 multiple choice questions with five options to choose from for the answer. The test was composed of 4 short narrative texts with 5 questions about the contents of each text.

The students were asked to choose the correct option based on the texts they read. For the post-test, they were again given a similar multiple choice test with the same number of questions but with different texts and different questions.

The pre-test was given at the first meeting (meeting 1) and was done to get an initial score from each student. It took 45 minutes for the students to finish the test. The next day, the first of five (5) treatments was conducted (5x90 minutes). In the treatments, the GIT procedures were applied in teaching reading to the students in the EC. The 45 minute post-test was given in the last meeting (meeting 7) to find out the reading comprehension ability of the students after the treatment.

Data Analysis
To determine the scores of the students' test results, the writers used a scoring rubric proposed by Heaton (1978) as follows:

$$\text{Student's score} = \frac{achieved\ score}{maximum\ score} \times 100$$

For normality, the formula of chi quadrant was used to find out whether or not the distribution of the pre-test and post-test are normally distributed (Sudjana, 2002:273).

$$x^2 = \sum_{i=1}^{k} \frac{(Q_i - E_i)^2}{E_i}$$

Where:
x^2 = stand for chi-square
f_i = stands for the observed frequency
Q_i = stands for the expected frequency

Furthermore, to determine if the subject came from a population that have a homogeneous variance or not, the researcher used a test of homogeneity of variance. The formula used in analyzing the data is stated by Sudjana (2002:273).

$$F = \frac{S_1^2}{S_2^2}$$

Statistical analysis was further used to determine frequency distribution, range (R), class of data (K), and class of interval (I), means, standard deviations and Z-score (see Sudjana, 2002).

FINDINGS

Normality Distribution Test for the Pre-test Score of the EC

In analyzing the normality of the test, the writers referred to the following hypotheses:

H_o = the score of the EC are normally distributed
H_a = the score of the EC are not normally distributed

The hypotheses have been proven by using level of significance 5% (=0.05) with the criteria:

If x^2 obtained $<x^2$ table, H_o is accepted
If x^2 obtained $>x^2$ table, H_o is rejected

The normality distribution result of the pre-tests from the students in EC is shown in Table 1 below.

Table 1. Normal Distribution Results from Pre-tests in the EC.

Score	Frequency (fi)	Limit Score	z-score	z-area	Expected Frequency (Ei)	X^2=(fi-Ei)/Ei
		19.5	-1.76667			
20 – 30	6			0.112080	4.03494956	0.95699
		30.5	-1.03333			
31 – 41	9			0.231365	8.329126	0.05404
		41.5	-0.3			
42 – 52	11			0.285525	10.2789039	0.05059
		52.5	0.433333			
53 – 63	3			0.210714	7.58569709	2.77214
		63.5	1.166667			
64 – 74	5			0.092956	3.34641401	0.8171
		74.5	1.9			
75 – 85	2			0.024489	0.88160377	1.41879
		85.5	2.633333			
Sum	36				Chi =	6.06964

The data from the table above was used to find out whether the ability of the students in the pre-test was normally distributed or not by using the chi quadrant formula. The result of normal distribution

showed that the x^2_{obtain} was 6.06964. Based on the level of significance α=0.05 and df=k–3=6–3=3, the distribution label of chi-quadrate was $x^2_{(0.05)}$=7.82. This showed that x^2_{obtain} 6.06964<x^2_{table} of 7.82, which meant that the pre-test results from the EC were normally distributed.

Table 2. Normality Distribution Result of Post-test in the EC.

Score	Fi	Limit Score	z-score	z-area	Ei	$(fi-Ei)^2/Ei$
		44.5	-2.72296929			
45– 53	1			0.021246451	0.764872	0.0722801
		53.5	-1.96891626			
54 – 62	2			0.087727777	3.1582	0.4247442
		62.5	-1.21486322			
63 – 71	9			0.210258265	7.569298	0.2704227
		71.5	-0.46081019			
72 – 80	12			0.292864336	10.54312	0.2013172
		80.5	0.29324285			
81 – 89	4			0.2371867	8.538721	2.4125381
		89.5	1.04729588			
90 – 98	8			0.111657616	4.019674	3.9413626
		98.5	1.80134892			
Sum	36				Chi = 7.322665	

The data from the table above was also used to find out whether the ability of the students in the post-test was normally distributed or not by using the chi quadrant formula. The results showed that the x^2_{obtain} was 7.322665. Based on the level of significance α=0.05 and df=k–3=6–3=3, the distribution label of chi-quadrate was $x^2_{(0,05)}$=7.82. The result showed that x^2_{obtain} 7.322665>x^2_{table} of 7.82 which means that the post-test results from the EC were normally distributed.

The Homogeneity of Variance Test for the Pre-tests from both the EC and the CC

In order to find out the homogeneity of variance of the results from the pre-tests from both the EC and the CC, the data must first be tested to find out whether it was normally distributed or not. The hypotheses used were as follows:

H_o = the scores from EC are homogeneous
H_a = the scores from EC are not homogeneous

The hypotheses have to be proven by using the level of significance 5% (α=0.05) with the criteria:

If $F_{obtain} < F_{table}$, H_o is accepted

If $F_{obtain} > F_{table}$, , H_o is rejected

Based on the pre-test scores it was found that x=46 for the EC and x=52 for the CC. According to the significance level at 5% (0.05), the $F_{\alpha(n_1-1,n_2-1)}$ or $F_{0.05(30.35)}$ and the result is 1.88. From the calculation, it was found that $F_{obtain} < F_{table}$ in which F_{obtain} is 1.566 while F_{table} is 1.88, thus 1.566 < 1.88. Therefore, based on the data H_0 was accepted. This meant that the variance from both the EC and the CC was homogenous.

Table 3. Results from Pre-tests in EC and CC.

	Results from Pre-tests of EC	Z Score	Results from Pre-test of CC
N (Number of Students)	36		32
R (Range)	65		45
X (Mean Score)	46	-1.95	52.37
S (Standard Deviation)	14.72		11.72

The statistical summary presented in Table 3 shows that the number of students in the EC was almost the same as in the CC (36 and 32 students). The range of test scores from the CC was smaller than that from the EC but the score was considered as a normal score since there are no extreme scores. The calculation of range was obtained by subtracting the highest score from the lowest score from the test. Thus, for the pre-test results from the EC, the range was 85–20=65, while for the pre-test results from the CC the range was 70–25=45.

Furthermore, the mean score for the EC was 46 and that for the CC was 52. The distribution indicates that the scores from the two groups were not widely scattered. The standard deviation for the EC was 14.72 whilst for the CC was 11.72. The z-score from the EC and the CC was -2.1, hence the null hypothesis was accepted and the alternative hypothesis was rejected.

Table 4. Results from the Post-tests in the EC and the CC.

	Results from Post-tests of EC	Z Score	Results from Post-tests of CC
N (Number of Students)	36		32
R (Range)	50		50
X (Mean Score)	77	4.29	64
S (Standard Deviation)	11		13.87

The range from the pre-test (50) is the same as from the post-test (50). This shows that the scores from the pre-test and the post-test are again homogenous. However, it was found that for the z-scores there was a significant difference between the results from the post-tests from the EC and those from the CC (4.29) where the score was outside the given limits (-1.96 and +1.96). Thus, the alternative hypothesis is accepted which means that there was a significant difference between the two means from the results from the pre-tests and the post-tests.

Since the alternative hypothesis is accepted and the null hypothesis is rejected, it can be concluded that the use of GIT was a good alternative for teaching reading in place of the Grammar Translation Method. In other words, the two groups had significantly different results and the GIT gave better results for the reading comprehension achievements for the EC students.

DISCUSSION

After processing the data using statistical analysis, it was found that there was a significant improvement in the reading comprehension results of the students who were taught using the GIT and those who were not. This means that the GIT had a positive impact for teaching reading comprehension. This was proved as the mean score from the EC, where the post-test was higher than from the pre-test (77>46).

However, based on the analysis of the students' answer in the pre-tests, the writer found that students got lower scores for three aspects. There were problems related to questions to identify the main idea, answer vocabulary in context, and finding the correct inference. This is shown as almost all students got poor or average scores for those three aspects. In answering questions related to vocabulary and reference, they had difficulties to find an appropriate synonym for the word used since they did not know the meaning of the word itself. After having treatment, they knew how to find and determine a suitable synonym for a word by guessing the meaning from the context of the text. In answering inference questions, the students still had difficulties in looking for the right inferences since they did not understand the text well.

The means from each aspect of the reading comprehension pre-test are set out in Table 5.

Table 5. Means for Each Aspect of Reading Comprehension in the Pre-Test.

Aspects of Reading Comprehension	Mean
Main Idea	6
Details Stated	23
Vocabulary in Context	21
Inferences	22
References	14

Based on Table 5, it can be seen that the highest mean is from the details stated (23) and the lowest is from the main idea (6). It also shows that there was only one other aspect in reading comprehension where the mean was low, namely references (14). In other words, students had difficulties to find the main idea and the references from the texts that they had just read.

On the other hand, the means from each aspect in the reading comprehension from the post-test showed different results, this can be seen in Table 6.

Table 6. Means from each Aspect of Reading Comprehension in the Post-Test.

Aspects of Reading Comprehension	Mean
Main Idea	11
Stated Details	41
Vocabulary in Context	26
Inference	48
Reference	16

Based on the table, it can be seen that the highest mean is from inference (48). This means that there was a great improvement in answering the inference questions compared to the pre-test. Then, in answering stated details questions, the students also did not have any difficulties since the answers for the question are clearly stated in the text. On the other hand, the mean of guessing vocabulary in context still become the lowest (26).

There were also three aspects in reading comprehension that had some improvement after the treatment, namely references (16), details stated (41), and main idea (11). It is different from pre-test where each aspects of reading comprehensions mean are low.

In short, Table 5 and Table 6 show that the mean scores from the post-test were higher than from the pre-test for the EC. This means that

there were some improvements by these students after the teacher implemented the GIT for teaching reading comprehension.

It can be concluded that the GIT had a positive impacts for improving the reading comprehension ability of the EG students. The improvement from using the GIT in teaching reading comprehension was proved by the significant improvement in the scores from the pre-test to the post-test of the EG which was not matched by the CG.

CONCLUSIONS AND SUGGESTIONS

The objective of this research was to find out whether there could be any significant difference in improvement in reading comprehension ability between students taught using the GIT and those taught by using the usual individual reading activity method, the Grammar Translation Method (GTM). To answer the objective of this research, the researcher conducted experimental research. After conducting the experiment, it was found that the improvement in the reading comprehension ability of the students taught through the GIT was better than the standard results from the GTM.

Therefore, based on the results from this experiment, it is concluded that the hypotheses initially stated that there will be a significant difference in improvement in the reading ability of students taught by using the GIT and those taught by using the conventional method (individual reading activity) was accepted. According to the research findings, it was found that the GIT can be a suitable alternative technique for improving the reading comprehension ability of students. Of course, the support from their teachers, motivation, and the way of explaining the teaching materials, and appreciation from their teachers are other important aspects that cannot be ignored. The writers therefore would like to propose some suggestions for English teachers and for further researchers.

Firstly, teachers should find ways to teach reading which can motivate the students to read. Secondly, when trying to find better ways, teachers should analyze the needs of their students in order to find material that will interest them. In other words, teachers should not dominate the classroom but should give their students the opportunity to express themselves. They should also try to find out the difficulties their students have whilst working in groups. Lastly, class management must be considered as an important aspect for a successful teaching-learning process.

Meanwhile, for other researchers who are interested in conducting similar research, it is suggested that they do more than five meetings since it is believed that more treatments with the students will further improve their reading ability. Moreover, it is hoped that this study can be used as a reference for further studies.

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