

# The Effectiveness of Scientific and Scaffolding Approaches in Teaching Writing

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**Keywords:** Scientific Approach, Scaffolding Approach, Students' Ability in Writing.

**Abstract:** This research aims to describe the effectiveness of scientific, scaffolding and conventional approaches in teaching writing of descriptive texts for VII grade students at SMP N 1 Brebes. This research used quasi-experimental method using pre-test and post-test. The population was all students of VII grade at SMP N 1 Brebes consisting of seven classes in the even semester of the academic year 2016/2017. The sample was students of VII D, E and G classes determined by using simple cluster random sampling technique. The instrument was writing test in the form of an essay. The validity of the instrument was content validity which was obtained through the consultation with experts (expert judgment). The inter-rater technique was used to test the reliability of the instrument with Pearson Product Moment Correlation. Normality test and homogeneity test were performed as the analysis of the test. Kolmogorov-Smirnov was used to test normality and Levene test was used to test homogeneity. Data analysis technique used was One Way Analysis of Variance (ANOVA) followed by Scheffe test supported by SPSS 16.0 for windows program. The result of this research indicates that scientific, scaffolding and conventional approaches have a significant difference in effectiveness in teaching writing of descriptive texts for VII grade students at SMP N 1 Brebes indicated by (p) lower than 0.05.

## 1 INTRODUCTION

People learn English since it is very useful for their studies, business, and social interaction internationally. However, many students learn English since it exists on their school curriculum. According to the 2013 curriculum, the students have to learn English at Junior High School in which they are asked to master speaking, listening, writing and reading skills. Therefore, the English teacher needs to make the English learning fun so that the students can master receptive and otherwise skills for interaction both inside and outside the classroom.

Writing is regarded as a complicated activity since it includes several cognitive and linguistic skills. Cognitive skill is displayed from the ideas expressed as the result of the writing process. Ashman and Conway (1997) state that cognitive is a blend of brain activities. It indicates that its activities consist of understanding, especially, about how the connection of prior knowledge with stimuli that links inside and outside of the individual takes place. In the context of writing, cognitive skill is displayed by the quality of ideas, the topic chosen, and the

ideas organized in a writing product. Meanwhile, the linguistic skill is displayed by the quality of diction, the correct structure rule, the correct utterances, and the correct mechanics.

Since writing is a complex activity, the students tend to feel writing is difficult so that they easily get bored in writing class. As said by Richard and Renandya (2002), the difficulty in writing for the second language (L2) learners is to generate and organize the ideas and put these ideas into readable text. Therefore, the students need to highly pay attention the vocabularies, the grammar, the ideas, and the text structures. Based on the researchers' observation, the students' writing ability of VII grade students at SMP N 1 Brebes was still low. They encountered many difficulties to express their ideas into written form. They made a number of mistakes in their writing in terms of vocabulary and grammar.

In addition, they also feel that the teaching-learning process is still teacher-centered. They were given some examples of certain text, and then they were asked to read them. Then, the teacher explained about the meaning, the generic structure

and the social function of the text. After that, the students were asked to compose a text such as an example with the free topic. The last, they submitted the text without any revision before so that they did not know what mistakes they made with their writing product. As the result, most of the students were not interested in learning writing.

Implementing appropriate teaching approach is one of the fundamental factors which can affect the students' interests in learning writing. Therefore, the teachers should improve their knowledge related to the various approaches which might be suitable to implement in their writing class. Then, they are demanded to be creative in making their lesson plan. Furthermore, they also should apply other approaches besides conventional approach which can make the students active in learning activities. This is one of the basic characteristics of Scientific Approach, known as student-centered.

According to Education and Culture Minister (2013), scientific approach is a teaching approach aims to support and motivate the students to think critically, analytically, and precisely in recognizing, understanding, solving problems, and practicing the learning materials. Hosnan (2014) says that there are five steps of implementing the scientific approach in the teaching-learning process, they are observing, questioning, experimenting, associating, and communicating. In scientific approach, these steps involve listening, speaking, reading and writing skills to gather the data and information with the final outcome is written product. At the end of the scientific activity, the product will be presented in front of class seen by all students in that class.

In brief, by using scientific approach for the writing activity, the students will be involved in some interesting activities such as determining the purpose, the process, and the result. Therefore, the students are not considered as passive receivers but they have to be given chances to find ideas and concepts. In summary, by using this approach the students are expected to have good skills, knowledge, and attitude.

Besides scientific approach, the appropriate approach for learning writing is Scaffolding Approach. Scaffolding is an approach in which the teacher assists the students temporarily to complete the task so that they can do it by themselves. This is in line with the opinion of Maybin et al. (1992) that scaffolding is the temporary help but essential nature of the teacher's assistance in supporting students to carry out the tasks successfully. Scaffolding has relation with the concept of Vygotsky (1980).

Vygotsky (1980) in his concept named Zone of Proximal Development (ZPD) state that development is the space among the child's level of independent performance and the child's level of maximally assisted performance. From that concept, the students need teachers to assist them in developing their knowledge or skill. Therefore, scaffold writing is needed to make the students being an independent writer. It also helps the students to become actively engaged in assessing their needs, progress, achievement, and effort in learning writing. In summary, by using scaffolding approach the students are able to write independently after getting temporary guidance from their teacher.

In addition, some studies have been done to explore the effectiveness of scientific and scaffolding approaches in teaching and learning English. Zaim (2017) aimed at implementing of scientific approach in the teaching of English at senior high school in Indonesia. The findings showed that among the five steps of scientific approach, the teachers have implemented experimenting, associating and communicating well in teaching English. As a result, the students' ability in English improved.

Yasinta (2014) studied at covering the effects of scaffolding techniques on writing proficiency among VIII grade students. Moreover, it seeks to explore the relationship between the effectiveness of scaffolding technique and writing proficiency. It was experimental research and the result showed that independent t-test and paired t-test revealed the experimental group improved significantly and indicated that writing proficiency was a significant factor in the effectiveness of scaffolding technique.

The above studies deal with scientific and scaffolding approaches in teaching English. However, those two approaches have not been known effective in teaching writing for grade VII students at SMP N 1 Brebes. In this research, hence, the researcher focuses on the effectiveness of scientific and scaffolding approaches in teaching writing for grade VII students at SMP N 1 Brebes.

## 2 METHODS

This research was quasi-experimental using pre-test and post-test control group design. There were two variables involved, i.e. the approaches used in teaching writing of descriptive texts as the independent variable and the students' ability in writing of descriptive texts as the dependent

variable. The population was all students of VII grade at SMP N 1 Brebes consisting of 267 students which divided into seven classes in the even semester of the academic year 2016/2017. The sample was students of VII D, E and G classes determined by using simple cluster random sampling technique.

The students of VII E class was the experiment group 1 taught through the scientific approach. The students of VII G class was the experiment group 2 taught through scaffolding approach. Then, the student of VII D class was control group taught by using conventional approach. Furthermore, the pre-test was administered as a means to find out the homogeneity of the two groups before the treatment and the post-test was administered as a means to find out the effectiveness of the teaching approaches.

The research was programmed for nine meetings from March to April 2017. The teaching schedules for the experimental groups and the control group were in the similar weeks. The meetings held twice a week for both groups based on the schedule from the school. The instruments employed in this research were writing test (pre-test and post-test) and the scoring rubric to assess the students' works. Writing test was employed to gain the students' essays and the scoring rubric was employed as a guide of the assessment to score the essays. The sample of this research was 90 students.

The data were gathered using a test. The instrument was writing test in the form of an essay. The validity of the instrument was content validity which was obtained through the consultation with experts (expert judgment). The inter-rater technique was used to test the reliability of the instrument with Pearson Product Moment Correlation. Normality test and homogeneity test were performed as the analysis of the test. Kolmogorov-Smirnov was used to test normality and Levene test was used to test homogeneity. Data analysis technique used was One Way Analysis of Variance (ANOVA) followed by Scheffe test supported by SPSS 16.0 for windows program.

### 3 FINDINGS AND DISCUSSION

#### 3.1 Findings

##### 3.1.1 Preliminary Research

The researcher with the English teacher at SMP N 1 Brebes conducted the pre-test on March 8th, 2017. All students of the two groups were given the pre-

test simultaneously to control the external validity of the experiment. The purpose of this pre-test was to assess the students' writing ability before getting a series of treatment. Before calculating the mean, the maximum and minimum score, standard deviation, variance, and the score distribution, the researcher coordinated the early condition of both groups. It was required to prove that the final outcome was only affected by the treatments. In this case, normality distribution and homogeneity of variance testing were employed as the pre-requisite analysis. In common, normality distribution was computed by using Kolmogorov-Smirnov with the sig. value (0.05). Hence, after computing the score of writing performance pre-test done by the three groups, then the data of normal distribution was displayed in table 1.

Table 1: The Result of Normality Distribution of Pre-Test.

|                        | One-Sample Kolmogorov-Smirnov Test |                                     |                                     |
|------------------------|------------------------------------|-------------------------------------|-------------------------------------|
|                        | <i>Ist Exp. Group (Scientific)</i> | <i>2nd Exp. Group (Scaffolding)</i> | <i>Control Group (Conventional)</i> |
| Kolmogorov-Smirnov Z   | .747                               | .662                                | .651                                |
| Asymp. Sig. (2-tailed) | .633                               | .772                                | .790                                |

Based on the data presented in Table 1, it could be described that the p-value of the first experimental group was 0.633. Meanwhile, the p-value of the second experimental group was 0.772. The last group that was the control one had p-value 0.790. Therefore, it could be said that the scores of the pre-test of all groups were normally distributed since p-value > 0.05. After showing that the pre-test data were normally distributed, the researcher examined the homogeneity of variance of the pre-test. Its result was presented in Table 2.

Table 2: The Result of Homogeneity Variance of Pre-Test.

| <i>Levene Statistic</i> | <i>df1</i> | <i>df2</i> | <i>Sig.</i> |
|-------------------------|------------|------------|-------------|
| .526                    | 2          | 87         | .593        |

From the Levene Test presented in Table 2, it could be read that (p) is higher than 0.05 (0.593 > 0.05). In brief, both the experimental groups and the control one were homogeneous. After the Pre-requisite Analysis had been fulfilled, ANOVA independent test was conducted. Its result was presented in Table 3.

Table 3: Anova of Pre-Test Score.

|                | <i>Sum of Squares</i> | <i>df</i> | <i>Mean Square</i> | <i>F</i> | <i>Sig.</i> |
|----------------|-----------------------|-----------|--------------------|----------|-------------|
| Between Groups | 241.800               | 2         | 120.900            | 1.643    | .199        |
| Within Groups  | 6400.200              | 87        | 73.566             |          |             |
| Total          | 6642.000              | 89        |                    |          |             |

Based on table 3, the level of significance ( $p$ ) was 0.199. It was higher than 0.05 ( $0.199 > 0.05$ ). In other words, there was not a significant difference in students' pre-test scores between the experimental groups and the control one. In brief, the students' writing competence of descriptive text of the three groups at the beginning of the research was the same.

### 3.1.2 The Description of Pre-test

Here, the students had to write a descriptive text about describing a rhinoceros, GUCI and their favorite idol. The result of students' writing pre-test is presented in table 4.

Table 4: The Description of Pre-test Score.

|                | <i>1st Exp. Group (Scientific)</i> | <i>2nd Exp. Group (Scaffolding)</i> | <i>Control Group (Conventional)</i> |
|----------------|------------------------------------|-------------------------------------|-------------------------------------|
| N              | 30                                 | 30                                  | 30                                  |
| Mean           | 54.9000                            | 53.2000                             | 50.9000                             |
| Median         | 55.0000                            | 55.0000                             | 52.0000                             |
| Std. Deviation | 8.33087                            | 9.01110                             | 8.37216                             |
| Variance       | 69.403                             | 81.200                              | 70.093                              |
| Minimum        | 37.00                              | 36.00                               | 32.00                               |
| Maximum        | 67.00                              | 67.00                               | 67.00                               |

Based on Table 4, the average scores of the three groups at the beginning of the research were 54.90, 53.20, and 50.90.

### 3.1.3 The Description of Post-test

After applying the three approaches, the researcher conducted a post-test to all groups with the same instruction as in pre-test. Its result is presented in table 5.

Table 5: The Description of Pre-test Score.

|                | <i>1st Exp. Group (Scientific)</i> | <i>2nd Exp. Group (Scaffolding)</i> | <i>Control Group (Conventional)</i> |
|----------------|------------------------------------|-------------------------------------|-------------------------------------|
| N              | 30                                 | 30                                  | 30                                  |
| Mean           | 78.3000                            | 72.2000                             | 66.3000                             |
| Median         | 79.0000                            | 72.5000                             | 64.0000                             |
| Std. Deviation | 7.45631                            | 8.47471                             | 5.98936                             |
| Variance       | 55.597                             | 71.821                              | 35.872                              |
| Minimum        | 65.00                              | 60.00                               | 55.00                               |
| Maximum        | 88.00                              | 86.00                               | 80.00                               |

Based on Table 5, the average scores of the three groups after getting the treatments were 78.30, 72.20, and 66.30. In other words, the average score of the first experimental group was the highest compared to other groups. Therefore, after calculating the score of writing performance post-test achieved by the three groups, then the data of normal distribution is presented in Table 6.

Table 6: The Result of Normality Distribution of Post-test.

|                        | <b>One-Sample Kolmogorov-Smirnov Test</b> |                                     |                                     |
|------------------------|---|-------------------------------------|-------------------------------------|
|                        | <i>1st Exp. Group (Scientific)</i>        | <i>2nd Exp. Group (Scaffolding)</i> | <i>Control Group (Conventional)</i> |
| Kolmogorov-Smirnov Z   | .816                                      | .652                                | 1.086                               |
| Asymp. Sig. (2-tailed) | .519                                      | .790                                | .189                                |

From the result of the computation as seen in table 6, it could be said that the data of the first experimental group is normally distributed with probability 0.519. The student's post-test score of the second experimental group also had normality distribution with the sig. Level 0.790. Meanwhile, for the control group, the data was normally distributed in probability level of 0.189. Those three values were higher than 0.05. In other words, the data of the post-test of the two groups had a normal distribution. After showing that the post-test data were normally distributed, the researcher examined the homogeneity of variance of the post-test. Its result is presented in Table 7.

Table 7: The result of Homogeneity Variance of Post-test.

| <i>Levene Statistic</i> | <i>df1</i> | <i>df2</i> | <i>Sig.</i> |
|-------------------------|------------|------------|-------------|
| 1.721                   | 2          | 87         | .185        |

From the Levene Test presented in Table 7, it could be described that ( $p$ ) is higher than 0.05 ( $0.185 > 0.05$ ). In brief, both the experimental groups and the control one were homogeneous. After the Pre-requisite Analysis had been fulfilled, ANOVA independent test was conducted. The result of ANOVA independent test presented in Table 8.

Table 8: Anova of Post-test Score.

|                | <i>Sum of Squares</i> | <i>df</i> | <i>Mean Square</i> | <i>F</i> | <i>Sig.</i> |
|----------------|-----------------------|-----------|--------------------|----------|-------------|
| Between Groups | 2160.200              | 2         | 1080.100           | 19.844   | .000        |
| Within Groups  | 4735.400              | 87        | 54.430             |          |             |
| Total          | 6895.600              | 89        |                    |          |             |

Based on Table 8, it could be described that the F value is 19.844 in sig. Level 0.000. Thus, (p) was lower than 0.05. Therefore, the Ha (Alternative Hypothesis) was accepted and the Ho (Null Hypothesis) was rejected. In conclusion, there was a significant difference writing competence between the students who involved in the experimental

groups and the control group. In other words, scientific, scaffolding and conventional approaches were a significant difference in the effectiveness in teaching writing. Therefore, it is continued by conducting the scheffe test to determine the sequence effectiveness of the three approaches as presented in Table 9.

Table 9: The Result of Scheffe Test.

| (I)<br>APPROACH | (J)<br>APPROACH | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |             |
|-----------------|-----------------|-----------------------|------------|------|-------------------------|-------------|
|                 |                 |                       |            |      | Lower Bound             | Upper Bound |
| 1               | 2               | 6.10000*              | 1.90490    | .008 | 1.3558                  | 10.8442     |
|                 | 3               | 12.00000*             | 1.90490    | .000 | 7.2558                  | 16.7442     |
| 2               | 1               | -6.10000*             | 1.90490    | .008 | -10.8442                | -1.3558     |
|                 | 3               | 5.90000*              | 1.90490    | .011 | 1.1558                  | 10.6442     |
| 3               | 1               | -12.00000*            | 1.90490    | .000 | -16.7442                | -7.2558     |
|                 | 2               | -5.90000*             | 1.90490    | .011 | -10.6442                | -1.1558     |

### 3.2 Discussion

Based on the result of analysis, the researcher discusses the results of the research findings as follows.

#### 3.2.1 Scientific, Scaffolding and Conventional Approaches Have Significantly Different in Effectiveness in Teaching Writing

Based on One-way ANOVA test, it is shown by (p) < 0.05 (0.000 < 0.05). In conclusion, Scientific, Scaffolding, and Conventional approaches have a different level of effectiveness in teaching writing.

In Scientific approach, the students are engaged actively in the teaching and learning activities from the beginning to the end. In other words, it is categorized as student-centered. In addition, their other skills such as speaking, reading and listening also improve especially when the students collect the data and information.

Furthermore, scaffolding is very popular in the educational world. It is able to help students to organize their ideas so that it is good for writing practices. The scaffolding approach is helpful in writing since teacher provides guidance to students until they could write independently. It helps students to think more clearly. Therefore, it makes the writing process more enjoyable. However, students become dependent on their teacher.

Meanwhile, the conventional approach also has given a contribution for teaching-learning writing and for students' writing ability. However, teacher has more authority than students, starting from deciding the topic, doing the writing activities, editing the writing product, and publishing. Thus, in the conventional class, teacher is more dominant than students in the writing activities.

#### 3.2.2 Scientific Approach and Scaffolding Approach Have a Different Level of Effectiveness in Teaching Writing

According to Scheffe test, Scientific is more effective than Scaffolding approach in teaching writing with (p) > 0.05 (0.008 < 0.05). Based on the researchers' observation, Scientific gives the students independence to decide the topic and design the task. It creates them freely to be creative and innovative. Meanwhile, in Scaffolding class, the students looked little interested in learning activities. They get teacher guidance to put their ideas into written form. The learning process is also done under the teacher guidance until the students could write independently.

#### 3.2.3 Scientific Approach is More Effective than Conventional Approach in Teaching Writing

In accordance with the Scheffe test, there is a different mean of effectiveness between the students who are taught by scientific and conventional

approaches, indicated by (p) 0.000. Since the (p) is lower than the sig. value 0.05, it is concluded the different mean of effectiveness between the two groups is significant. Therefore, the two approaches have a different level of effectiveness.

### 3.2.4 Scaffolding Approach is More Effective than Conventional Approach in Teaching Writing

According to Scheffe test, it is concluded that Scaffolding is more effective than Conventional one with (p) 0.011. It is lower than 0.05 ( $.011 < 0.05$ ). Based on the researchers' observation during the treatment, the students who are engaged in the Control group get the problem in organizing their ideas. On the other hand, those who are treated by Scaffolding approach are able to explore and organize their ideas more easily. Therefore, their writing competence is higher than those of the Control group.

### 3.2.5 Scientific Approach is the Most Effective compared to Scaffolding and Conventional Approaches in Teaching Writing

According to Scheffe test, it is obviously described that mean difference of scientific to scaffolding and conventional approaches is positive (6.10000 and 12.00000). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted. Thus, it is concluded that the use of scientific approach was the most effective compared to scaffolding and conventional approaches in teaching writing. As a result, students' writing ability of the first experimental group after the treatments given is at the highest level compared to the second experimental group and the control group.

## 4 CONCLUSIONS

According to the research findings, the researcher concludes this research into several statements. **First**, scientific, scaffolding, and conventional approaches have a significant difference of the effectiveness in teaching writing. **Second**, scientific approach is more effective than scaffolding approach in teaching writing. **Third**, scientific approach is more effective than conventional approach in teaching writing. **Fourth**, scaffolding approach is more effective than conventional approach in teaching writing. **Finally**, scientific

approach is the most effective compared to scaffolding and conventional approaches in teaching writing.

Those conclusions are drawn based on the research employed at SMP N 1 Brebes by including the students of VII E, VII G, and VII D classes as the samples of this research. This research was conducted during two months. In the long time of conducting the experiment, the bias of the experimental research might happen. To avoid that, the researcher controlled the internal validity to make sure that the findings were only affected by the independent variable.

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