THE EFFECT OF THE NEUROLOGICAL IMPRESS METHOD IN TEACHING READING COMPREHENSION

by

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Abstract

This study aims to 1) analyze the effectiveness of the Neurological Impress Method in teaching reading at a junior high school in Lingsar, West Lombok. This study used a quasi-experimental design with a non-equivalent control group design. The researcher employed two classes in this study: control and experimental. This research has 30 students as the study sample, and each class consists of 15 students. The reading test is utilized as the research instrument to collect the data. Sampling was carried out using cluster random sampling. The data was analyzed using SPSS 12, collected from the pre-test and post-test designs. The results showed that using the neurological impress method affected students' reading skills. Students' reading achievement before being taught using the neurological impress method in reading texts is generally low, as shown by the average score of 40.76. Students' reading achievement using the neurological impress method is better after being taught. This can be seen from the mean value of 67.13. Statistical analysis using paired sample t-test using SPSS 12, indicated by t (0.05) t-table value is (0.000) and t-value or t-count (0.000). It was lower than the 0.05 level. The alternative hypothesis (Ha) is accepted, and the null hypothesis (Ho) is rejected. Therefore, this research is expected to provide implications for implementing the neurological impress method for teaching reading skills in junior high schools in Indonesia to encourage the improvement of the neurological impress method on a large scale.

Keywords: Neurological impress method, reading comprehension

Abstrak:

Penelitian ini bertujuan untuk 1) menganalisis keefektifan Neurological Impress Method dalam pengajaran membaca di sebuah sekolah menengah pertama di Lingsar, Lombok Barat. Penelitian ini menggunakan desain quasi eksperimen dengan desain kelompok kontrol yang tidak ekuivalen. Peneliti menggunakan dua kelas dalam penelitian ini, yaitu kelas kontrol dan kelas eksperimen. Penelitian ini memiliki 30 siswa sebagai sampel penelitian dimana masing-masing kelas terdiri dari 15 siswa. Tes membaca digunakan untuk mengumpulkan data sebagai instrumen penelitian. Pengambilan sampel dilakukan dengan menggunakan cluster random sampling. Data dianalisis menggunakan SPSS 12 dimana data yang dikumpulkan dari desain pre-test dan post-test. Hasil penelitian menunjukkan bahwa penggunaan Neurological Impress Method berpengaruh terhadap kemampuan membaca siswa. Prestasi membaca siswa sebelum diajar dengan menggunakan metode impresi neurologis dalam membaca teks secara umum rendah, seperti yang ditunjukkan oleh skor rata-rata 40,76. Prestasi membaca siswa setelah diajar dengan menggunakan metode neurological impress lebih baik dari sebelumnya. Hal ini terlihat dari nilai rata-rata 67,13. Analisis statistik menggunakan uji-t sampel berpasangan dengan menggunakan SPSS 12, ditunjukkan dengan nilai t (0,05) t-table adalah (0,000) dan nilai t atau t-count (0,000). Nilai tersebut lebih rendah dari level 0,05. Hipotesis alternatif (Ha) diterima dan hipotesis nol (Ho) ditolak. Oleh karena itu, penelitian ini diharapkan dapat memberikan

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INTRODUCTION

Reading skills are crucial in learning English as a foreign language, which not all secondary education students have yet mastered. Reading can help learners improve their English proficiency and enhance their knowledge from the information they get from the Text they read (Ali et al., 2022; Habók & Magyar, 2019). Reading is essential to the learning process because it increases the student's performance, develops their class participation, and improves their comprehension (Shehata, 2019). Reading is constructing meaning from the text that involves several strategies to comprehend, synthesize, and communicate information effectively (Baker et al., 2019; Shehata, 2019). Reading is an umbrella term that involves a set of complex and interrelated activities to comprehend and read text about language to be successful in education (Baker et al., 2019; Yapp et al., 2023). Reading skills are also defined as cognitive ability in which a person can understand the Text being read, and the content gives meaning to the reader (Naibaho, 2022; Neugebauer & Blair, 2020).

Some studies report that most of the students still encounter difficulties in reading. Ismail et al. (2017) contended that reading difficulties are related to reading comprehension, which is related to background knowledge, cultural knowledge, and knowledge of text type. The second problem is limited vocabulary. The third problem is complex and very long sentences. The texts with longer sentences will be more challenging to understand than shorter sentences. Based on the explanation above, the researcher states that the student's difficulties in reading are due to the student's belief that the materials about the reading texts are difficult to understand because the students do not have enough knowledge.

Furthermore, the problem of students in reading, especially at (1) literal comprehension, includes understanding the word's meaning, determining the reading's topic, finding the reading's main idea, and determining the express statement. (2) interpretive comprehension, with activities such as organizing reading information and the relationship between reading content, understanding the details implied in the reading, making reading inferences, and concluding the reading content. (3) critical understanding, with the activities...
such as comparing the information in the Text with the reader's background (Nadirah et al., 2020; Octavia & Jufri, 2019)

Based on the results of observation of students' reading skills at SMPN 2 Lingsar West Lombok, students have difficulties improving their reading skills because they seldom do the reading activity at school. Besides, the students have difficulties reading with good intonation, and they also have difficulties producing words. The other case of the student's reading skills is the student's inability to read the text with a loud voice in class. In other words, the difficulties make students less motivated to read an English text. Seeing that problem, the researcher implemented a neurological impress method that can be used to teach reading skills.

Heckelman (1969) explained that the neurological impress method is a strategy for reading quickly. The tutor and student sit side by side and begin to read aloud together. After the pace is established, the teacher begins to read slightly ahead of the student with appropriate expression and intonation (Young et al., 2018). After completing the neurological impress method by reading a page or paragraph, the students reread the selection text aloud. The neurological impress method is a system of unison reading by the students and teacher who read aloud simultaneously rapidly (Oladele, 2013).

Furthermore, the neurological impress method is similar to the reading-aloud method that uses drilling. These two methods have differences in application to students. The neurological impress method is applied more privately between one student and one teacher than reading aloud, implemented between several students and one teacher. The purpose of implementing the neurological impress method is to help the students analyze the words (Hidayati & Fahri, 2021).

According to Heckelman (1969), there are several steps for teaching reading with the Neurological impress method, and they are as follows: (1) choose a challenging text that is appropriate for students' reading level; (2) the students sit in front of the teacher and begin reading the selected material out loud together. The teacher's voice should be louder and faster than the students; (3) the teacher runs a finger under the words simultaneously as the words are read; (4) The teacher and students reread the initial lines or paragraph several times together to build confidence and comfort with the method before proceeding to new material; (5) the teacher asks the students to read the Text aloud in front of the class one by one;(6) continue with subsequent page or paragraph for 20 minutes.
In addition, there are several reasons that the Neurological impress method remains attractive, challenging, and worthy of being researched. First, the Neurological impress method is that reading aloud gives the teacher a significant way to assess reading ability development, including retelling, comprehension questions, and the multidimensional fluency scale as time affects words read correctly per minute and word recognition accuracy (Young et al., 2018). Second, it can be used to improve the ability of students' phonemic awareness, reading fluency, and reading comprehension (Hidayati & Fahri, 2021; Syahriani et al., 2022; Ziadat & AL-Awan, 2017). Third, the neurological impress method involves students and instructors reading aloud together. The instructor leads the reading, sitting a little behind the student and speaking directly into the student's right ear while moving a finger under the word(s) being read. The last, the Neurological impress method gives teachers an easy way to improve students' reading, deliver rapid progress in a limited amount of time, offer non-stressful reading instruction, provide a multi-sensory approach to reading, increase the attention span, provide a model of correct reading, and eliminate many poor reading (Yuniari, 2016).

Several research studies show that the neurological impress method helps to improve student reading skills (Harahap, 2019; Khatimah, 2019; Lestari, 2018; Yuniari, 2016). Khatimah (2019), for example, used this research to measure the students' reading comprehension between the scores of those taught using the neurological impress method and those taught using a conventional method of reading comprehension. This research used quantitative and quasi-experimental methods (non-equivalent control groups). The data was collected through pre-tests and post-tests. It aimed to know whether the neurological impress method in teaching reading can encourage students' reading comprehension. In conclusion, the Neurological Impress Method is practical for teaching reading comprehension. In line with Khusnul Khatimah, Harahap (2019) attempted to improve students' ability to read comprehension text by using the Neurological Impress Method. The research showed that the neurological impress method can improve students' ability in reading comprehension. There was The effect of applying the neurological impression method on the student's ability in reading comprehension that they became more joyful, cheerful, active, and interested in reading to express their ideas. The final result showed that 6.09 > and 1.67 were found based on the degree of freedom (df). Furthermore, Yuniari (2016) investigated whether or not there was any significant effect of the neurological impression method on the reading
comprehension achievement of tenth-grade students. The results showed that some data points were obtained by conducting a reading comprehension test: normality and homogeneity test, try-out test, and post-test. In addition, the study conducted by Lestari (2018) investigated any differences between the students taught using the neurological impress method and those taught using a conventional method in reading ability. This study found no significant differences between students taught using the Neurological Impress Method (NIM) and those taught using the Conventional Method.

This present research is expected to bring novelty in investigating the significance of the neurological impress method in teaching reading comprehension. Research on neurological impression methods is minimal, focusing on improving reading comprehension. Most previous studies were conducted at the primary education level, and only several were conducted at EFL secondary and tertiary education levels. This study is expected to present a novelty in the subject area.

This research is urgent to investigate the neurological impress method's effect on teaching reading comprehension. It investigates neurological impressive methods in reading comprehension skills that can be a guide for other researchers on the same research topic. Another goal is to boost the quantity and quality of research using the neurological impress method to enhance reading fluency and comprehension. The researcher then formulates the following research question: **Is there any significant difference in students' reading achievement before and after being taught using the Neurological Impress method?**

**METHOD**

**Design**

This study uses a quasi-experimental design for the pre-test and post-test non-equivalent control groups (Cohen et al., 2017). Researchers cannot undertake actual experiments, such as randomly assigning participants to control or experimental groups. The present study applied the treatment for one semester in two classes, namely the neurological impress method and the conventional class. The experimental class used the neurological impress method, while the control class used a conventional learning model.
**Participant**

The participants of this study were Eight Grades at SMPN 2 Lingsar West Lombok. This study consisted of two classes, namely the experimental class and the control class, with 30 students. They were taught different treatments. The difference was that the experimental class used the neurological impress method in teaching reading. Meanwhile, the control group was taught using the conventional method. Cluster random sampling was chosen as a sampling technique.

**Instrument**

The research instrument is a reading test. The test is given twice for the students, namely before and after giving treatment, to obtain the data. The pre and post-tests consist of 15 questions in multiple-choice form. The students are given a pre-test to determine their reading comprehension skills before the treatment. The students are given post-tests to see their progress in reading.

**Data collection technique**

Pre-tests and post-tests were conducted on the experimental and control groups to collect the data. The Pre-test serves as the initial data. The participants are asked to answer 15 questions based on the information in the reading text. The students were given 45 minutes to complete the pre-test. Meanwhile, the Post-test aims to see how well the students can comprehend after treatment, and then the score is compared with the score from the pre-test. The post-test lasted approximately 45 minutes.

**Data analysis technique**

To analyze the data, the researcher used SPSS 12, namely the data collected from the pre-test and post-test. The following analyses were applied to analyze the obtained data. They are:

1) the normality test of the pre-test and post-test in experimental and control groups,
2) the paired sample test of the pre-test in experimental and control groups,
3) the homogeneity test of the post-test control group, and
RESULT AND DISCUSSION

Result

The results of the findings of this study are presented based on the following research questions: (1) Is there any significant difference in students' reading achievement before and after being taught using the Neurological Impress method?

The research data obtained were proceeded and analyzed using the SPSS program (Cohen, 2013). The research data include data from the pre-test and post-test results regarding the implementation of the neurological impress method for teaching reading comprehension. The reading test consists of a pre-test and post-test with 15 items of multiple choice. Based on the descriptive statistical computation, the types of descriptive statistics used are the mean and standard deviation.

1. Descriptive Data

Table 01. Descriptive statistics

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>pre_test_experiment</td>
<td>30</td>
<td>20.00</td>
<td>86.00</td>
<td>40.7667</td>
<td>15.28958</td>
</tr>
<tr>
<td>post_test_experiment</td>
<td>30</td>
<td>40.00</td>
<td>86.00</td>
<td>67.1333</td>
<td>13.78588</td>
</tr>
<tr>
<td>pre_test_control</td>
<td>30</td>
<td>6.00</td>
<td>46.00</td>
<td>21.9667</td>
<td>9.46676</td>
</tr>
<tr>
<td>post_test_control</td>
<td>30</td>
<td>20.00</td>
<td>53.00</td>
<td>35.9667</td>
<td>9.97405</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table above shows that the minimum score of the pre-test experimental is 20.00, and the maximum value is 86.00. In addition, the mean value was 40.7667, and the student deviation was 15.28958. In the post-test of the experiment, the minimum value was 40.00, the maximum value was 86.00, and the mean was 67.1333. and the Std. The deviation was 13.78588. In the pre-test control, the N variable showed the number of students as many as 30. The minimum value was 6.00, and the maximum value was 46.00, the mean was 21.9667, and the Std. The deviation is 9.46676. In the pre-test control, the N variable showed the number of students as many as 30. The minimum value was 6.00, and the maximum value was 46.00, the mean was 21.9667, and the Std. The deviation is 9.46676. In the control group post-test, the minimum value was 20.00, the maximum value was 53.00, the mean was 35.9667, and the Std—deviation was 9.97405.
2. Normality Test

Table 2. Tests of normality

<table>
<thead>
<tr>
<th></th>
<th>Kolmogorov-Smirnov</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic  Df</td>
<td>Sig.</td>
</tr>
<tr>
<td>pre_test_experiment</td>
<td>.166  30</td>
<td>.034</td>
</tr>
<tr>
<td>post_test_experiment</td>
<td>.167  30</td>
<td>.032</td>
</tr>
<tr>
<td>pre_test_control</td>
<td>.249  30</td>
<td>.000</td>
</tr>
<tr>
<td>post_test_control</td>
<td>.150  30</td>
<td>.082</td>
</tr>
</tbody>
</table>

The result from the table shows that there was the significant value of the pre-test in the experimental group was 0.34, calculated by using the normality test of the Kolmogorov-Smirnov test and the significant value of the pre-test in the control group was 0.12 of Shapiro-Wilk. It was found that the significant value of post-test experimental scores was 0.32 for Kolmogorov-Smirnov, and the post-test scores in the control group were 0.82. Both scores were categorized as expected since the p-output was higher than the mean significant difference at 0.05 level. It could be concluded that the data obtained were considered normal.

3. Paired Sample Test

Table 3. Paired samples test

<table>
<thead>
<tr>
<th></th>
<th>Paired Differences</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>Std. Error Mean</td>
</tr>
<tr>
<td>pre_test_control - post_test_control</td>
<td>-14.000  7.012</td>
<td>1.280</td>
</tr>
</tbody>
</table>
Based on the Pair 1 output, the obtained score was Sig. (2-tailed) of 0.000<0.05, it can be concluded that there were differences in the average student learning outcomes for the pre-test experimental class with the experimental post-test class. Based on the output of Pair 2, the score Sig was obtained. (2-tailed) of 0.000 <0.05, it could be concluded that there were differences in the average student learning outcomes for the pre-test and post-test of the control class. Thus, it can be concluded that the Neurological Impress Method affects students reading Text at the Eight Grade students of SMPN 2 Lingsar West Lombok.

4. Homogeneity Test

<table>
<thead>
<tr>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>post_test_control</td>
<td>Based on Mean</td>
<td>2.317</td>
<td>1</td>
</tr>
<tr>
<td>Based on Median</td>
<td>2.212</td>
<td>1</td>
<td>58</td>
</tr>
<tr>
<td>Based on the Median and with adjusted df</td>
<td>2.212</td>
<td>1</td>
<td>53.123</td>
</tr>
<tr>
<td>Based on trimmed mean</td>
<td>2.317</td>
<td>1</td>
<td>58</td>
</tr>
</tbody>
</table>

Furthermore, the Levene test was used to test homogeneity. Based on the calculation of homogeneity test output, the significant value (Sig.) of post-test control was 0.133. Since the significance (0.133) was higher than the alpha value (0.05), it could be concluded that the data obtained was considered homogenous. Since the data were normal and homogenous, the independent sample t-test analysis could be conducted.

5. Independent Test

<table>
<thead>
<tr>
<th>F</th>
<th>Sig.</th>
<th>T</th>
<th>Df</th>
<th>Std. Error of Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>post_test_control</td>
<td>Equal variances assumed</td>
<td>2.317</td>
<td>.133</td>
<td>10.0</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
<td>10.0</td>
<td>32</td>
</tr>
</tbody>
</table>
Furthermore, the independent sample t-test was also applied to find a significant effect between the experimental and control groups. The result indicated that the significant value (2-tailed) was 0.000, lower than the 0.05 level. It can be concluded that the (Ho) hypothesis was rejected, and the (Ha) hypothesis was accepted. Thus, there is a significant difference between students taught using the Neurological Impress Method and those not using the Neurological Impress Method in terms of reading skills.

The improvement could be seen in their pre-test and post-test in the data descriptive. The results of the average pre-test of the experimental and control classes were 40.76 and 67.13. From this result, it was found that the abilities of both classes were relatively different. Furthermore, based on their pre-test score, we can see that the students have difficulties in comprehending reading text.

After giving treatment, the student's reading ability was improved, which was proved by the result of the post-test score of the experimental class, 67.13, which was an upgrade from the pre-test. Meanwhile, in the control class, those who taught without using the neurological impress method also got an increase in score to 35.96. Based on the score, the score of the experimental class was higher than the control class.

We can see that there is an effect on experimental class reading ability. The treatment that uses the neurological impress method affects students' reading ability. When the researcher taught by using the neurological impress method, the student's reading ability becomes easier to understand and enjoy. The students were more motivated than before when they were taught the neurological impress method. The neurological impress method helps increase students' interest in reading Text.

Based on the result of the data analysis, the means scores pre- and post-test were continued, and the computation of the means scores was continued. Then, we could see which group obtained better scores after the treatment. For the experimental class, the mean score is 67.13, and for the control class is 35.96. It shows that the score of the experimental group was higher than the control group. This means that the use of the neurological impress method has significant differences between the students who did not use the neurological impress method in the eighth grade of SMPN 2 Lingsar West Lombok in the academic year 2022/2023.

From the above hypothesis, it can be concluded that the neurological impress method,
the hypothesis is Ha, can improve the student's ability to teach reading.

Discussion

The findings indicate that the neurological impression method significantly improves the student's achievement in reading comprehension. It is proven by the students' post-test average score, which is 27 points higher than their pre-test scores. In addition, the result of the independent t-test indicated that the significant value (2-tailed) was 0.000, which was lower than the 0.05 level. Thus, it indicates that the neurological impress method positively impacts teaching reading skills. The result echoes the previous studies. For example, Hidayati and Fahri (2021) which stated that the neurological impress method increases the ability of dyslexic students in terms of phonemic awareness, reading fluency, and reading comprehension.

Moreover, Patricia (2022) proves that the neurological impress method effectively teaches reading to children with reading difficulties, especially fluency and comprehension. In addition, the read-two impress and the neurological impress methods are adequate interventions to increase reading comprehension and fluency (Young et al., 2018). Furthermore, the Neurological impress method is an effective technique for reading fluency intervention for students with reading disabilities (Ziadat et al., 2018). The neurological impression method can improve students' reading comprehension in finding the students' central ideas (Syahriani et al., 2022). The neurological impress method significantly improved the students' reading ability (Lestari, 2018).

Considering the results of this current study and previous studies, it can be inferred that the neurological impress method is appropriate to be implemented to solve students' problems of phonemic awareness, fluency, and reading comprehension, as well as to create meaningful learning. Moreover, the neurological impress method can improve students' reading comprehension in finding the main idea and increase reading comprehension, fluency, and phonemic awareness.

CONCLUSION AND IMPLICATION

Conclusion

In considering the result of the findings and discussion, the researcher concluded that using the neurological impress method affects the students' reading ability in eighth grade of
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SMPN 2 Lingsar. The students' reading achievement before being taught using the neurological impress method is generally low. The mean score of 40.76 shows it. The students' reading achievement after being taught using the neurological impress method is better than before. This is shown by the mean score of 67.13.

Based on the statistical analysis using paired sample t-test using SPSS 12, it is shown with t (0.05), the value of the t-table is (0.000), and the t-value or t-count (0.000). It was lower than the 0.05 level. The alternative hypothesis (Ha) is accepted, and the null hypothesis (Ho) is rejected. This means a significant difference between the students' reading skills before and after being taught using the neurological impress method and their reading achievement. However, because of the limitations of the study, it is recommended that other researchers undertake further research on similar topics.

Limitation

The study's limitations are those characteristics of design or methodology that impacted or influenced the application or interpretation of the results of your study. State the weaknesses of the current study excellently.

Implication

This study's limitation lies in the number of students as research participants, the study's learning theories, and the research method. The study's research participants were only 30 students from two out of four classes. It is better to have more than 30 students as the research participants for the following research. This study has not fully exposed the learning theories implemented regarding neurological impress method theories. It must also support other learning theories, such as the principle of teaching reading and the steps. Regarding the research method utilized, another research design can be used to investigate neurological impress methods such as qualitative research, action research, and mixed method research.

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who has assisted and encouraged our research. It is hoped that the findings of this study will improve and advance EFL reading instruction.

BIO-PROFILE:

Ilham is a full-time lecturer at Universitas Muhammadiyah Mataram in West Nusa Tenggara, Indonesia's English Education Study Program. At the Indonesia University of Education (UPI), Bandung, West Java, he finished his doctoral studies in English language education in 2021. His main areas of interest are curriculum and material creation, teaching academic writing, and teaching English as a foreign language (TEFL). Among Ilham's research interests are implementing the Genre-Based Approach, scaffolding instruction, mind mapping, think-pair-share technique, material development in teaching writing skills in higher education, teachers' questioning, and teachers' pedagogical beliefs, knowledge, and classroom teaching practice. His email address is ilham.ummataaram@gmail.com
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