

Analysis of Information Processing Learning Model in Improving Arabic Reading Skills

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Abstract. The purpose of this research is to analyse the effectiveness of the information processing learning model in improving Arabic reading skills for Islamic senior high school students. The study was conducted using a quasi-experimental method with a pre-test post-test design which consist of the experimental group and the control group. The treatment was carried out systematically based on the eight steps of learning in the information processing model. Data analysis was performed using descriptive statistics and t-tests. The findings of the study stated that the learning model of statistical information processing can improve student performance related to the ability to read Arabic, but in terms of achievement, the effectiveness of this learning model is still below the minimum standards expected.

1. Introduction

Arabic has become one of the most widely used languages throughout the world [1]. Likewise, in Indonesia, where Arabic is a compulsory subject in Islamic primary schools to Islamic secondary schools. In learning Arabic, there are four aspects that are learned, namely: speaking (mahārah al-kalam), listening (mahārah al-istima), writing (mahārah al-kitabah) and reading skills (mahārah al-qirā'ah) [1]. The four aspects are important to learn, but the aspect of reading is the most likely thing to do because there are many means in the form of books or other reading media, and this activity can be done anywhere and anytime [2]. The ability to read is also considered a very important skill in the context of language learning, because with this ability it is closely related to the success of students in the academic world [3].

The ability to read is the ability to understand vocabulary in a written text and then make connections between the words in achieving a comprehensive understanding [3]. However, reading is a complex process because it involves many systems, therefore it is influenced by several factors [4]. These factors consist of general abilities such as intelligence and memory and linguistic abilities such as verbal abilities, phonological, metalinguistic, and knowledge related to orthographic principles [4]. The ability to read is related to cognitive learning theory, whereby reading there will be the acquisition of information to be processed, stored, remembered, and activated [5]. In cognitive learning theory, one of the most commonly used learning models is information processing models, where learning represents the process of gathering information to then organize that information into mental schemata [6]. It is also in line with research which states that reading skills correlate with information processing, especially in aspects of words [7]. The Information processing learning model can also help in



understanding the psychological mechanisms of students so that it can be known the difference between good and not good readers [4].

In the information processing model, the key issue is to view learning and memory activities as discontinuous and multi-staged, so that they relate to three levels of memory, namely: sensory memory, short-term memory (STM), and long-term memory (LTM) [8]. Sensory memory is the initial stage in receiving a stimulus, with very limited storage capacity so that information can only last for a short time. Therefore, students need to transfer information to the next stage by giving meaning or emphasis related to the information to students. So that information in the sensory memory stage can be transferred to STM which functions to hold information consciously for a short period of time, students must consider the information received as an interesting and patterned feature on a regular basis. So that information can be recalled, the information in STM must be transferred to LTM in several ways such as visual imagery, meaningful learning, and repetition.

In implementing the information processing learning model there are eight phases that must be carried out, namely [9]: (1) providing motivation, (2) understanding, where teachers ensure students receive and understand information obtained from learning activities, (3) acquisition, namely each student gives meaning/perceives all information that arrives at him so that the storage process occurs in students' memory, (4) Retention, that is. the transfer of new information from short-term memory to long-term memory, (5) Calling, which is removing memory that is saved, (6) generalization, that is using learning outcomes for specific purposes, (7) Appearance, that is learning is said to occur when a stimulus affects an individual, so that behavior changes occur as a result of learning activities, and (8) feedback, namely providing feedback to students based on their performance which shows whether they have or do not understand what is taught.

Based on the complexity associated with reading skills, especially in Arabic and the ability of learning models for information processing in supporting the cognitive aspects of students, the research question in this study is how the effectiveness of learning models for information processing in improving Arabic reading skills? Based on these research questions, this study aims to test the effectiveness of information processing learning models in improving Arabic reading skills for Islamic senior high school students in Indonesia. The results of this study are expected to be information for Arabic language teachers related to information processing learning models in improving students' reading skills.

2. Method

The study was conducted using a quasi-experimental method using a pretest-posttest design. In this study, two intact groups were established, namely the experimental group and the control group. The experimental group consisted of 34 students at one of Islamic Senior High School in the city of Cimahi, West Java Indonesia. The control group consisted of 34 students from the same school. The experimental group was given treatment by conducting learning activities based on eight phases following the learning model of information processing. As for the control group learning activities do not use the information processing learning model. Learning activities, both in the experimental group and the control group are carried out by an Arabic subject teacher who has mastered every stage of teaching in the information processing learning model.

There are two main aspects related to the ability to read Arabic that is the focus of assessment, namely [10]: mechanical aspects and cognitive aspects. Mechanical aspects include understanding the meaning of each word and the ability to pronounce the word. The cognitive aspects include understanding the meaning at the sentence level, being able to analyze the main idea at the paragraph level, and being able to link the information in the reading with previous experience or knowledge.

The assessment activities were carried out using the observation method for each student, both in the experimental group and the control group by different Arabic teachers during the learning activities to avoid the subjectivity of the assessment. Performance appraisal is based on the ability of each student related to every aspect that is the focus of assessment using the Likert scale with the following values: 1 = not mastering; 2 = less mastered; 3 = master; and 4 = very mastering. Data analysis was performed

using descriptive statistics on the pre-test and post-test scores of the experimental group and the control group on two main aspects of Arabic reading ability. The significance between the pre-test and post-test values was carried out using the t-test, both in the experimental group and the control group using the t-test with p-value used to consider the results of significant was $p \leq 0.005$.

3. Result and Discussion

3.1. Result

Data analysis was carried out on two aspects which were the focus of assessment, namely on the mechanistic aspects and cognitive aspects. The mechanistic aspect consists of two assessment indicators, namely: the ability of students to understand the meaning of each word and the pronunciation of words. The cognitive aspect consists of three indicators, namely: the ability to understand sentences, the ability to analyze the main ideas in a paragraph, and the ability to associate information in reading with previous experience and knowledge. Table 1 provides research results related to mechanistic aspects and Table 2 provides research results related to cognitive aspects.

Table 1. Mean, deviation standard, t-test values, dan p-values for Mechanistic Aspect

| | Pre-test | | Post-test | | t-test | p-value |
|------------------------------------|----------|-------|-----------|-------|---------|---------|
| | M | SD | M | SD | | |
| Experimental Group | | | | | | |
| a. Understand Meaning of Each Word | 1.853 | 0.500 | 3.000 | 0.550 | -15.351 | 0.000 |
| b. Word Pronunciation | 1.882 | 0.537 | 2.824 | 0.673 | -12.998 | 0.000 |
| Control Group | | | | | | |
| a. Understand Meaning of Each Word | 1.765 | 0.699 | 2.059 | 0.736 | -3.273 | 0.002 |
| b. Word Pronunciation | 1.765 | 0.554 | 2.000 | 0.603 | -3.187 | 0.003 |

Regarding the mechanistic aspects, in general, in all assessment indicators, both in the experimental and control groups there was an increase in performance at the time of the post-test. This is then strengthened based on the results of the t-test, where at the value of $p = 0.005$, there is a significant increase based on p-value < 0.005 . On this basis, it can be concluded that although the information processing learning model has been proven to significantly improve students' abilities related to the mechanistic aspects, the learning model that has been used so far as given to the control group has also been shown to significantly improve the ability of students related to these aspects.

Improved performance in the experimental group, although generally increased significantly statistically, but the average value has not reached 3 or the value that represents students mastering the indicator, except for indicators related to understanding the meaning of words. Therefore, related to the mechanistic aspects it can be concluded that the information processing learning model can improve Arabic reading skills in Islamic Senior High School students statistically, but related to grades based on a Likert scale is still not effective. This is based on the achievement of the post-test scores obtained by the experimental group where only one indicator reaches a value of 3.

Table 2. Mean, deviation standard, t-test values, dan p-values for Cognitif Aspect

| | Pre-test | | Post-test | | t-test | p-value |
|---|----------|-------|-----------|-------|---------|---------|
| | M | SD | M | SD | | |
| Experimental Group | | | | | | |
| a. Understanding the Sentence | 1.765 | 0.606 | 2.882 | 0.537 | -13.643 | 0.000 |
| b. Analyze the main idea of the paragraph | 1.735 | 0.618 | 2.824 | 0.673 | -14.046 | 0.000 |

| | | | | | | |
|--|-------|-------|-------|-------|---------|-------|
| c. associate information in reading with previous experience and knowledge | 1.912 | 0.570 | 3.029 | 0.674 | -13.643 | 0.000 |
| Control Group | | | | | | |
| a. Understanding the Sentence | 1.794 | 0.592 | 1.971 | 0.577 | -2.659 | 0.012 |
| b. Analyze the main idea of the paragraph | 1.824 | 0.673 | 1.971 | 0.717 | -1.713 | 0.096 |
| c. associate information in reading with previous experience and knowledge | 1.794 | 0.592 | 2.176 | 0.758 | -4.044 | 0.000 |

Related to cognitive aspects, in the experimental group, it appears that there was an increase in performance on all assessment indicators. This is reinforced based on the results of the t-test, where at the value of $p = 0.005$, there is a significant increase based on the value of p -value < 0.005 on all indicators. Similar to the experimental group, the control group also experienced an increase in performance in all assessment indicators. Based on the t-test, there are two assessment indicators that increase significantly with p -value < 0.005 , namely the ability to understand sentences and the ability to associate information in reading with previous experience and knowledge. As for indicators related to the ability to analyze the main idea in a paragraph, there was no significant increase in performance because it had p -value > 0.005 .

The increase in performance although statistically generally increases significantly, but the average value has not reached 3 or the value that represents students mastering the indicator, except for indicators related to the ability to link information in reading with previous experience and knowledge in the experimental group. Therefore, related to cognitive aspects, it can be concluded that statistically, the information processing learning model can improve Arabic reading skills in Islamic Senior High School students, but related values based on the Likert scale are still not effective. This is based on the achievement of the post-test scores obtained by the experimental group where only one indicator reaches a value of 3.

3.2. Discussion

Based on the research findings, it can be concluded that the information-processing learning model can be alternate for teachers to improve reading skills in learning Arabic or in a broader context, namely in a foreign language. This ability is considered very crucial to be mastered because the reading ability is the most fundamental ability of the three components of other languages, including listening, speaking and writing. Without good reading skills, the other three components will also be difficult to develop. Therefore, in Islam, the first revelation that comes down is the “iqro” command, which is a command to read because the horizon of knowledge will be formed by beginning to read. Hundreds of years of history have proven that advanced civilizations in the world are very close and thick to the culture of reading.

Tests conducted on information processing learning models that can improve students' reading ability are things that need to be tried by other teachers in shaping students' reading abilities in foreign languages. Especially considering the rapid development of technology in which relations between countries seem to be without limits, the ability of foreign languages to become indispensable and it all starts with the ability to read. The ability to understand sentences, paragraph main ideas and link information in reading with previous experience or knowledge is a basic ability that students must master. The higher the level of education that students go through in trying to learn a foreign language, the higher the level of students' reading ability should be. For this reason, teachers must have many alternative ways in improving student's reading skill, one of which is recommended that is considered successful is the information processing learning model.

The advantages of using the information-processing learning model also in line with the research conducted by Wyrick [11] who stated that the learning information processing has a greater effect on the ability of students than on auditory learning. However, based on research conducted by Rankin [12], the information processing model turned out to be very beneficial for students with high comprehension speeds compared to students with low comprehension speeds. Although some experts suggest that the information processing model is often done on children with disabilities, but the purpose of the information processing model can also be done to improve the ability to read a foreign language, because one of the characteristics of the information processing model is to form from short-time memory to long term memory, so the learning model will be very useful for students in shaping their ability to understand the sentences and main ideas of foreign languages [13].

In the socio-cultural context in Indonesia that has occurred lately, an information processing model that aims to shape students' abilities in understanding the main ideas of paragraphs will be very useful in shaping students' media literacy competencies. This is due to the problem of hoaxes in Indonesia until now still a scourge that haunts the nation's disintegration. To deal with this problem, the information processing model in learning foreign languages functions to shape student competence in understanding millions of news in the social world, both Indonesian and foreign languages, so it is not easy to fall on hoax news. Through this, it can also shape-wise and smart behavior in using social media for students.

4. Conclusion

Based on the findings and discussion of the study, it can be concluded that the information processing learning model can significantly improve students' Arabic reading skills even though they do not meet the minimum standards of ability. Therefore, in practice, various strategies in the information processing learning model need to be developed more creatively so that it is expected to achieve the expected standard.

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