

# The Use of Computers in Teaching Approach to Improve Reading Skills among Primary School Pupils

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## Abstract

This study aims to describe improvement in reading skills among a group of primary school pupils in Pekanbaru Riau, Indonesia, with the use of computers. These pupils came from different educational backgrounds, namely, pupils who completed kindergarten and pupils who did not complete kindergarten. The method used in this study is quasi-experimental design with confound which combines two groups of pupils who do not affect each other. This experiment involved a total of 42 pupils of whom 28 completed kindergarten, and 14 did not complete kindergarten. The pilot study was assessed using cronbach alpha, and value of 0.86 was gained for the summary score, indicating high levels of reliability. The results showed a much better improvement in reading skills among pupils who did not complete kindergarten, compared to the pupils who completed kindergarten, which is 35.44 as opposed to 16:42. As an implication of the findings, it is recommended that computers are used as a strategic effort by authorities in primary education to improve the reading skills among primary school pupils.

**Keywords:** computer usage, reading skills, kindergarten, primary school

## 1. Introduction

In the next century, our life will be increasingly dependent on reading activities as information will be mostly conveyed in writing. Consequently, the efforts to develop and improve reading ability among the nations that want to improve will be more significant. Part of these efforts are carried out through primary school education (Akhadiah et al., 1991).

Learning to read in primary schools should be carried out in earnest and in accordance with the requirements of the curriculum. This is related to teaching tasks which should help pupils in primary schools improve their reading ability. It is becoming increasingly difficult to ignore this issue as an international study on children's reading ability around the world, Progress in International Reading Literacy Study (PIRLS), sponsored by the International Association for the Evaluation of Achievement, reported that on average, the reading ability of pupils from elementary schools and Madrasah Ibtidaiyah Indonesia ranks 41 out of 45 countries (Suhardjono, 2008).

Several local and international surveys have shown that Indonesians' interest in reading is still low, both in terms of quantity or quality. In 1992, International Association for Evaluation of Education, a report on a study which was set out to determine reading ability of primary students in sixth grade in 30 countries around the world, stated that Indonesia ranks 29th, which is a notch above Venezuela. The report is relevant to a study conducted by Vincent Greannary (1998) which was collected by the World Bank in an educational report, namely, Education in Indonesia from Crisis to Recovery. The results of the study showed that reading ability of the children in sixth grade in Indonesia is at the last place with a value of 51.7% after the Philippines who gained 52.6%; Thailand 65.1%; Singapore 74.0%; and Hongkong 75.5%. The results of a survey conducted by UNESCO (1992) indicate that the Indonesian's level of interest in reading ranks 27 out of 32 countries; (3) the results of a survey conducted by the Ministry of Education (1995) showed that 57% of readers are rated as merely reading without understanding or appreciating what is being read (Lina Khoerunnisa, 2010).

The report issued by the Central Statistics Agency (BPS) (2006) describes that Indonesians have not yet made reading as their primary activity in sourcing for information. They prefer to watch television (85.9%) and/or listen to the radio (40.3%) instead of reading newspapers (23.5%) (Central Statistics Agency, 2006).

Realizing a low ability in reading among the primary students, it is important to improve the quality of teaching how to read and start with beginner reading. However, teaching how to read and starting with beginner reading seems complicated as most children in Indonesia speak their regional language as the language of daily conversation (Akhadiati, et al., 1991). For most of them, Indonesian is a second language. Therefore, the teaching of Indonesian language in general, and the teaching of reading in particular, would educate pupils not only to understand the letters, words, and meaning, but also to understand Indonesian. Thus, the ability of teachers to teach how to read and start with beginner reading is extremely important.

Generally, children's early stages of learning to read is a process which is difficult to be controlled and implemented. Therefore, learning to read is a challenging task as the teaching and learning of reading involves teaching the pupils individually. Apart from that, there are influential factors in the teaching and learning of reading, namely, social backgrounds and differing levels of ability in children, especially in reading (Rio Sumarni, 2003).

For pupils of class I in primary school, learning to read is complicated as they try to get to know and connect sounds with letters or words they read. They also follow the teachers' instructions to practice writing. It is an essential and basic lessons for pupils in grade 1 in primary school to read and write. Reading is defined as a receptive language ability while writing is a productive language ability (Zuchdi dan Budiasih, 1996).

Learning to read in primary schools in Indonesia is carried out according to the distinction of low- and high-grade classes. Learning to read in low-grade classes is called beginner reading, while in the high-grade classes, advanced reading. In grade 1 primary schools, beginner reading is carried out in two stages, namely reading without books, and reading with books. Learning to read without books is carried out by using media or props other than books, such as picture cards, letter cards, word cards, and card verse., while while reading activity with books, using books itself as a teaching tool (Sri Nuryati, 2006).

Beginner reading programme in grade 1 aims to empower pupils to read the words and simple text fluently and accurately (Depdiknas, 2000). Reading fluency and accuracy at the beginner stage of learning to read in grade 1 is affected by the liveliness and creativity of teachers. In other words, teacher plays an important role to improve pupils' reading skills. This important role is related with the role of teacher as facilitator, motivator, learning resources, and managers in the learning process.

Reading is a process that involves acquiring meaning from printed items (Spodek dan Saracho, 1994). There are two ways that readers acquire meaning from printed items, namely (1) directly, by connecting the visual marker of its writing with its interpretation, and (2) indirectly, by identifying sounds in words, and linking them with meaning. The first way is used by advanced reader, while the second way is used by beginners.

Learning to read in primary school, especially in grade 1 and grade 2, is referred to as beginner reading lessons. The aim of beginner reading lessons is that the pupils are able to understand and articulate texts with reasonable intonation as a foundation for advanced readers. In addition, learning to read is worth and important for developing student's personality and abilities. Reading materials (such as discourse, verses, words, syllables, letters or sounds of language) which contains moral values, educational values, social values, emotional-spiritual values, and various other values, are the basis of forming and developing student's excellent personality. According to Winihasih (2005), pupils' skills and abilities can be developed in an integrated manner through reading textual materials that contain knowledge and new experiences which could ultimately have implications for developing various abilities in pupils.

Combs (1996) divides beginner reading activities into 3 phases: the preparation phase, the development phase, and the transitional phase. In the preparation stage, the child begins to realize about the function of print materials, the concepts about the workings of printed matters, the concept of letters, and the concept of the words. In the developmental stage, the child begins to understand the patterns of the language contained in the printed materials, and begin to learn to pair the words with other words. In the transition stage, children begin to change the habits of reading aloud to reading silently, and begin to read for leisure.

Burns et al. (1996) stated that the ability to read is something very important in an educated society. However, children who do not understand the importance of learning to read will not have the motivation to learn. Learning to read is a continuous activity, and children who are aware of the high significance of reading as a private activity will study harder compared to those who do not find a benefit in reading activities.

The study was conducted based on the facts that pupils in kindergarten have been taught how to read, although it is against the curriculum and the development of pupils' psychology. In addition, it was found that more than half of pupils in grade 1 primary school has been able to start reading. This situation complicates teachers to

determine whether their implementation of teaching in the classroom is successful. Teachers cannot ascertain whether the reading ability demonstrated by the pupils coming from kindergarten is the result of teaching and learning in grade 1. These circumstances make it difficult for teachers to implement a chosen way of teaching as they will try various ways. In addition, teachers prefer to use conventional means because they do not know any other way, such as how to read with the help of computers.

## 2. Problem Statement

The attitude of duality shown by educational leaders and parents of pupils towards teaching of beginner reading at kindergarten. On the one hand, experts in the fields of education and psychology do not justify the structured teaching of beginner reading done in kindergarten because it would interfere with the development of children's psychology when they were in Grade 3 primary school. Moreover, they consider that it is sufficient to introduce letters, words, and verses in the audio-visual to children at the age of 4-6 years. On the other hand, parents are very concerned their children are not accepted in the primary school as there are some schools that make reading skills as an entry requirement. In addition, some kindergartens make the ability to read and various knowledge as their selling power that many prospective pupils will enroll in their kindergartens.

Based on the Law of National Education System (Sisekolah rendahiknas) No.. 20 of 2003, kindergarten is included in the system of early childhood education (ECD) that promotes learning of morals, religious values, social, emotional, and self-reliance. All of these values are inculcated by means of conditioning exercises. The law does not mention kindergarten as a means of preparing the children for entering the primary school. Similarly, learning letters and numbers are not included in the educational curriculum of kindergarten, so, reading, writing, and arithmetic can be categorized as a violation of the rules. But in practice, the violation occurred in most kindergartens. It happened because of the demands of the majority of the primary schools require prospective pupils to have mastered reading, writing, and arithmetic (Mulyadi, 2005).

The results of the study support a strong association between early childhood education and intellectual development of children. The quality of teaching and intervention during early childhood programme affects children's academic success later in life (Blachman, 2000; Lyon, 1999, Snow, Burns, & Griffin, 1998). Furthermore, new studies on brain development (Garber, 1988; Walker, Greenwood, Hart, & Carta, 1994) showed the effect of early childhood education on the older children's cognitive, socio-emotional, and behavioral. In particular, early success in reading and knowledge is critical for children's cognitive growth.

The issue of reading, writing, and arithmetic is a separate phenomenon. This is because of the pros and cons of teaching reading, writing, and arithmetic in kindergarten. However, there is increasing concern among parents who have kindergarten-age children as they fear their children are not able to follow the lessons in school if the children are not equipped with the skills of early reading, writing, and arithmetic (Maya, 2007).

The distinction of social backgrounds and levels of ability can cause problems in learning of beginner reading at grade 1 primary school. In primary school grade 1, more than half of the pupils coming from kindergarten already have the ability of beginner readers. Some of them are from diverse backgrounds, who not only never attend kindergarten, but also have parents who pay less attention to their children in early education such that there are pupils who do not attend the primary school grade 1.

Teaching beginner reading is conducted by teachers using conventional means. In addition, teachers do not consistently use one particular teaching method. The teacher will replace some way if a certain technique does not demonstrate significant progress toward reading ability, even though it means they violate the principles of using a technique. Replacement of a technique can influence the results of pupils who are learning to read (Auzar, 2010).

It can be said that teaching with the help of a computer or a CD is never done. This is due to the lack of knowledge about the success rate and ease of teaching reading using computers. Many teachers are not aware of the fact that using computers in teaching reading has shown a significant success compared to using conventional means (Auzar, 2010). However, this success rate has not taken into account the pupils who are able to read since they were in kindergarten compared with the pupils who have never attended kindergarten. It is possible to see results indicating that pupils who graduate from kindergarten show better learning outcomes than pupils not graduating from kindergarten, but in the progress or development of teaching can prove otherwise. As such, this study will assess whether there is a significance difference in the rate of progress of learning how to read or development of learning how to read between the pupils who graduated from kindergarten compared to the pupils who do not graduate from kindergarten.

### 3. Literature Review

Reading ability is associated with schemata. Schemata are abstract knowledge structures that are stored hierarchically in the brain (Pratiwi, 2001). In relation to reading, Harjasujana (from Indrawati, 1996) explains that the schemata are associations or images that may appear in the imagination when the reader reads the word, phrase, or verse. According to the cognitive theory of Piaget, the scheme is knowledge structures that organize past experience and provides a framework for understanding new experiences. Piaget considers the scheme as a principle for the development of thinking blocks. As cognitive development is continuous, new schemes continue to be formed while existing schemes are efficiently organized in order to be adapted with the surrounding (Bhattacharya & Han 2001; Peta 2003).

Grade 1 pupils in primary school have firmly established their schemata because they have learned to read in kindergarten before entering elementary school. Based on observations by Mulyadi (2005) in addition to teaching singing, some kindergartens train the pupils' motor skills. Kindergarten pupils are taught every day to recognize the alphabet and numbers. In fact, children as young as four to five years was also required to practice writing in note books such as those done by primary school students. According to Rosalina (2008), writing, reading, mathematics, and even English, are now taught in kindergarten, although the subjects are not required by the curriculum.

Schemata is not the only factor for the success in reading. Burns et al. (1996) suggests the existence of six other important factors that determine a person's success in reading. These six factors are (1) the readers' background knowledge and experience, especially the one appropriate with the reading materials, (2) reading language acquisition, (3) interest in reading, (4) social and emotional readiness, (5) physical readiness, and (6) the ability to think.

The ability to read at a young age, such as at the kindergarten-age, is not something to be proud of as it would not be good for the student. According to Marit Korkman et al. (1999) as cited in Eva Fauzah (2010), children who learned to read when he gets a formal education at the age of 6 to 7 years would have a better reading achievement compared to children who learn to read at the age of 6 years or lesser. This is known as some tests are performed on the children at the age of 9 or 10 years old.

Eva Fauzah (2010) states that in a study, a psychologist in the U.S. compared two groups of children who are learning to read. The first group comprises of the children who attend academic kindergarten, where learning is like in the primary school, which teaches the students various subjects including reading. The second group is the students in regular kindergarten, which prioritizes games for their students. The results demonstrate that the graduates from academic kindergarten did not have a short-term or long-term academic excellence, when compared to regular kindergarten graduate students. In fact, the pupils from academic kindergarten look even more anxious and less creative than the students from regular kindergarten.

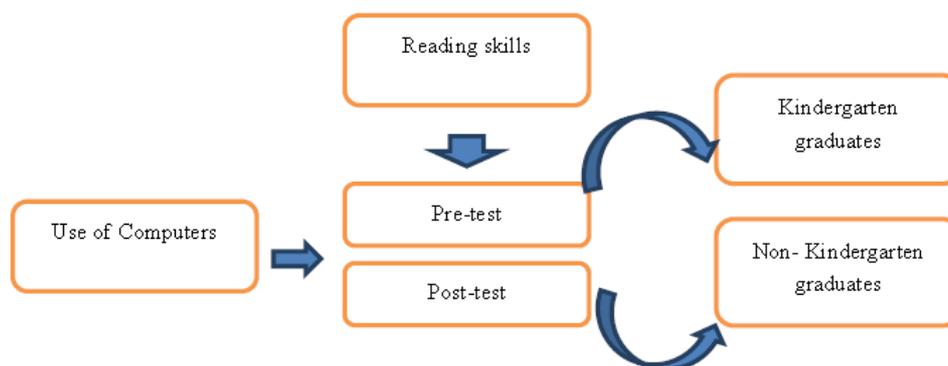


Figure 1. Conceptual framework

This study is conducted to investigate the effects of the use of computers on the increase of reading proficiency among students. This study was carried out by categorizing the learners into two groups, namely, pupils graduated from kindergarten, and pupils who did not graduated from kindergarten. The improvement in reading proficiency among students is seen through reading test scores before and after their learning by using computer. Pupils in the study were placed in one group.

#### 4. Research Objectives

This study aims to identify and describe the improvement or development of teaching reading among students who graduated from kindergarten compared to students who did not graduate from kindergarten. It was observed that the progress at the beginning of the learning process are made on the vowels and consonants, monosyllabic words, disyllabic words, and three-syllabic words which are stand-alone and used in sentences. Overall, the pupils use the computer approach.

#### 5. Research Methodology

The methodology used in this study is a quasi-experimental confound, an experimental study that merges two samples into one group in a classroom. It was decided that the best method to adopt for this investigation was to merge both sample groups as they do not affect each other, or in other words, they are not interdependent. Jackson (2006:154) states that *a confound is an uncontrolled extraneous variable or flaw in experiment. If a study is confounded, then it is impossible to say whether changes in the dependent variable were caused by independent variable or by the uncontrolled variable.* This study was conducted on students in the primary school in Pekanbaru. The samples involved in this study are a number of 42 people with 28 pupils who were kindergarten graduates and 14 pupils who were not kindergarten graduates. All samples were combined in a class that used a computer-assisted reading. This experiment was run for the duration of 16 sessions, and each meeting took a period of 35 minutes in the entire period of 8 weeks, and two meetings were held every week.

The test instrument was developed in the form of reading tests based on the curriculum for the first grade. The pilot study for the test was conducted involving 30 elementary school students in first grade in other school which is also under the Indonesian education system. The results of the pilot study, analyzed using Cronbach Alpha, show a high reliability of 0.86. Data were collected using pre-test and post-test in the form of reading skills test. Pre- and post- test were done with two groups of pupils who that went to kindergarten, and the group that did not go to kindergarten, to determine their level of reading ability. The reading test includes questions on the vowels and consonants, monosyllabic words, disyllabic words, and three-syllabic words which are stand-alone and used in sentences.

#### 6. Findings and Conclusion

A comparison of pre-test and post test was conducted to see the improvements in the reading skills among students. The results for pretest on the students who completed Kindergarten and those who did not complete Kindergarten are illustrated in Table 1 below.

Table 1. Improvement of reading skills among students

Group	N	Pre		Post		Improvement
		Mean	Standard Deviation	Mean	Standard Deviation	
Kindergarten	28	71.7	8.76	97.56	6.36	16.42
Non-Kindergarten	14	45.7	13.00	81.14	8.77	35.44

Table 1 shows the improvement in reading ability among non-kindergarten students (*Non Tadika*) (increase: 16.42) is higher than the ability to read shown by students who completed Kindergarten (*Tadika*) (increase: 35.44). The above findings clearly illustrated as figure 1 below.

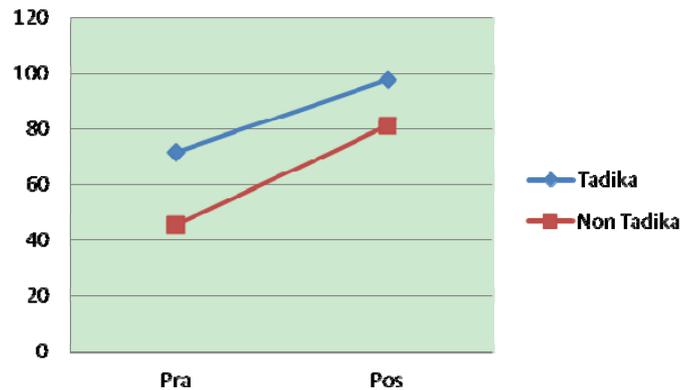


Figure 2. Increased reading skills among students

The results showed a better improvement in the skills of beginning reading among students of grade 1 primary school who did not complete kindergarten compared to students who completed kindergarten. This means that there is no guarantee that students who have learned to read in kindergarten will make a faster improvement in reading. According to Marit Korkman et al. (1999) in Eva Fauzah (2010), children who learn to read during formal education at the age of 6-7 years have a better reading performance compared to children who learn to read at the age of below 6 years. Their performance can be known when the test is done on the children at the age of 9 or 10 years old. Therefore, teachers need to master the concept of computer-aided teaching so that they have a solid understanding of the concept, which can affect their quality of teaching. This is necessary as the teachers have different understanding of the concept. Three main components should be in the Computer Assisted Language Learning, namely computers, language and learning (Finkbeiner, 2001).

### 7. Implications and Recommendations

Computers play an important role in developing reading ability among students. The use of computers in language teaching, which can influence not only the effectiveness of teaching but also students' language proficiency, is an appropriate effort to be made in order to have an impact on the problems being faced. As the latest teaching aids, the use of computers is seen as an effort that could change students' perception on language learning. As operators of teaching, language teachers need to have skills to conduct computer-aided language teaching. Although there may be difficulties in the implementation steps, teachers need to be prepared with the skills and knowledge to match with the current educational needs that require more student-centered teaching.

Computers may attract students' interest in reading and is easily used by teachers in teaching. Students are able to focus on the lessons as the computer displays text and colorful pictures that will attract the interest and attention of students. Computer assisted language learning encourages students to actively participate in class activities that are implemented during teaching and learning. Teachers should include the use of computers in the teaching of reading in a curriculum and not just focus on textbooks alone. The use of computers in teaching provides time for teachers to improve student materials as well as plan and organize lessons using computer according to the students' skills.

The use of computers in schools must be enhanced and this can help in overcoming the problem of illiteracy. A successful education programme that would particularly address the problem of illiteracy is influenced by adequate learning media, and is also influenced by the qualities of the teacher as well as students' own motivation to learn. Mobile phones have given a solution to overcome the obstacle of illiteracy. Computers provide direct effect on the world of education. With the Microsoft Word programme, computers are more widely used in writing and reading practices. With the development of computers in the society, someone who has not been able to write and read is encouraged to study hard so that he could read and write and use the computer as a communication tool popular in the community.

### 8. Conclusion

Lessons that teach beginner reading in primary schools are vital as it determines the development of the pupils' acquisition of knowledge in all areas of learning. With the ability to read fluently and understand its contents, it is easier for the students to understand the lessons. However, this does not mean that students should be taught to read before they enter primary school because this can inhibit the development of the pupils learning. Based on

the results of studies conducted on lessons that teach beginner reading using a computer or CD for grade 1 students who have completed kindergarten and those who did not, it was concluded that

1) the development of reading ability demonstrated by students who have completed kindergarten is much lower than the students who did not complete kindergarten although kindergarten graduates have acquired the ability to read;

2) the ability to read obtained by the students at kindergarten does not guarantee a good development of pupils read ability in primary school, but in fact, it can hinder their learning development.

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