Effectiveness of the CIRCOM Software on Students' English Performance and Motivation

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Abstract

This study aims to identify the effectiveness of CIRCOM software on student motivation and its relationship to English achievement. This experimental study involves 224 secondary school students in Pekanbaru Riau, Indonesia. A total of 112 students were recruited for the treatment group for using CIRCOM software, and a total of 112 students in the control group for using the conventional method. Data was collected using test questions to measure English achievement and questionnaires to measure student motivation. Data were analyzed by focusing on inferential statistics. The results showed that students using the software CIRCOM have higher motivation than students using the conventional method. The findings also show that there is a difference in academic achievement between students who are highly motivated with students who have low motivation in learning the English language. This showed that there is a positive relationship between motivation and achievement. The findings of this study have implications on everyone who is involved in education to cultivate the habit of using educational technology to improve students' motivation and academic achievement. This study suggests that CIRCOM Software is considered to be used as teaching aids to improve the performance of English secondary school students' motivation.

Keywords: English language, information technology, computer software, teaching and learning

1. Introduction

Technological application has a positive impact on the effectiveness of teaching and learning (Ismail, 2009). Thus, the use of technology in teaching and learning is very important. Empirical studies in Western countries also showed a positive relationship between the use of technology as a result from research on the effectiveness of teaching and learning (Schrock, 1991). Rapid technological advancement has produced many computer-centered instructional technology. Herringtondan Herrington (1998) found that the use of computer-aided teaching has been supporting and promoting flexible learning and reduce students' learning dependency on their instructors.

Development of science and technology also helps the students in their learning process and meaningful education include the use of technology in learning reading, writing, listening and so on. Meaningful education is not only focuses on intellectual development alone but also leads to the development of individual potential as a whole. The use of computer technology that has a variety of sophisticated software is able to motivate the students to perform meaningful learning activities. These activities are important for students to be knowledgeable and insightful which not only improve his intellectual capacity, but also a kind of training to handle the reality of life in the future (Rahim, 2007).

Rapid development of science and technology in various fields has a strong impact on educational technology. The use of modern technology is a catalyst for the development of education through information technology either in the form of audio, video or data that has become an important medium for teaching and learning. The use of technology and teacher initiatives in integrating technology in teaching and learning can promote active learning among students (Ahmad, Rahim & Seman, 2013).

The national education system is also not excluded in the current developments to ensure that countries are not left behind and are able to compete globally. The development of informational technology has a great potential

to transform the way people capture knowledge. It also provides opportunities for the teachers to apply various interesting and effective teaching techniques (Jamaluddin & Zaidatun, 2003). Through the use of technology in education, cooperative learning can be handled successfully. It is able to form a pattern of critical thinking skills among students and be able to build social skills among students as they discuss various problems in language learning (Ahmadi, 2004).

2. Problem Statement

Technology in education is not only an important aspect which helps the teaching and learning process but also is the key element to the modernization of the education system of a country. The use of computers and information technology in education will be meaningful if it is handled by a well-versed teacher. The technology should be used by teachers in an organized manner that suits the purpose of learning and student demography (Auzar, 2010). Creative use of information technology can assist in more effective delivery of knowledge as an abstract idea which can be visualized through the application of technology (Heinich et al., 2005). Considering the various disciplines in education, computer software and computer programs also have a variety of programs and creative softwares in line with the syllabus, the level of student thinking and the elements that are of interest to the students to use the software (Hamalik, 2001). However, the extent to which the software is appropriate and effective to attract and motivate the students is still unclear. Therefore, scientific research on this aspect is needed.

Activity-based learning method and active student participation is essential in language learning. Slavin (1995a) proposed cooperative learning as an approach to language learning. Cooperative learning is a learning process that involves students learn in small groups and work together to maximize learning (Johnson & Johnson, 1993). Although cooperative learning is able to train students' skills in critical thinking and improve learning and social skills (Slavin, 1991), not all students have the opportunity to communicate optimally. Furthermore, the diversity of students' personalities limits the students' opportunity to involve actively. Therefore, it is important to create a mechanism to ensure that all students have the opportunity to communicate and learn language. The existence of information and communication technologies has given an opportunity to the students. However, to what extent it really benefits the students and teachers are still not clear. This has prompted a research in this aspect. Furthermore, past empirical studies have shown that there are still many teachers with negative attitude towards computer-aided teaching in the learning process (Aziz, 2011). The study also found that not all teachers can accept and use technology in teaching and learning, such as the use of the most basic software, PowerPoint.

While technology in education has expanded rapidly, its use to enhance students' soft skills is still not answered. For example, many students in the Southeast Asian region are still facing difficulties to master English. Students come from different social and cultural backgrounds and different schools of origin which causes them to achieve English at different levels (Sharin, 2010). This question is marked with lacking of fluency in reading and speaking English, limited vocabulary and low level of understanding about the matters discussed in text (Santi, 2010). Those who are weak in English are even less motivated to learn, has lack of English vocabulary acquired, and face problems in reading (Rahim, 2007). Lacking of facilities and teaching techniques also contributes to the problem of learning the English language (Rahim, 2007). Although a computer software is used to help the students master English language, how it works is still not much studied. This is because many past studies had focused on the motivation among students (Lepper et al., 2005) without looking into what extent are the computers and information technology capable to motivate learning. Hence, to examine the effectiveness of the use of computer software in enhancing motivation and academic performance, CIRCOM software has been made the main subject. CIRCOM software usage is found to promote the active participation of students in the West (Rysavy & Sales, 2009). However, to what extent it is able to attract the students' interest and motivation in the Southeast Asian region is still unclear. This is an important study because there is a different perspective based on the differences in infrastructure, education system, socio-cultural and environment allows software applications CIRCOM in learning English here. For this purpose, Indonesia was chosen as the study location.

3. Research Objectives

This study aims to determine the effectiveness of CIRCOM software towards English achievement and motivation to integrate cooperative learning theory and computer aided learning theory which can be used effectively for teaching and learning language by the students of SMP Negeri Pekanbaru. In addition, the study also examines the relationship between motivation and achievement.

4. Research Methodology

This study uses a quasi-experimental design pre-test and post-test control group equivalent (*Non-equivalent pretest and posttest control group design*). Quasi-experimental design was used for this study using the classes

available (Wiersma, 2000). Internal validity was taken into account in this study with respect to Frankfort and Nachmias (2000) while for the extrinsic validity with respect to Sekaran (1992). The study involved a total of 224 secondary school students in Pekanbaru Riau Indonesia: 112 people from the treatment group and 112 from the control group.

The reliability of the survey instrument for English achievement test questions in this study is identified by determining the discrimination index, difficulty index and Cronbach alpha, while the questionnaire for motivation is determined by using the Cronbach alpha value. To determine the validity and reliability of the English achievement test questions are constructed, the difficulty index and discriminant index was searched based on a pilot study involving 30 high school students. Discriminant analysis to determine the index and difficulty index was done using the software ANATES4. Results of the analysis of the validity of the research instrument student English achievement test was at a moderate level for each item and each item is fit for use in this study (Karno To, 1996) and Cronbach alpha value for a test of English language and motivate students was at a good level of 0.84 and 0.79. This shows each item fit and strong surveyed used in this study (Lim, 2007). Data analysis involves inferential statistics including the Shapiro-Wilk, t-test and Pearson's correlation.

5. Results and Discussions

5.1 Analysis of Pre-Test English Language Achievement and Student Motivation

Shapiro Wilk analysis was carried out on the pre-test English language achievement and motivation involving student demographic groups. Shapiro Wilk test analysis results for the pre-test English language achievement and motivation are shown in Table 1 below.

Table 1. Shapiro Wilk pre-test for English language achievement and student motivation based on groups

Variables	Group	Shapiro-Wilk Statistics	Df	Sig.
English	Treatment	0.982	112	0.132
	Control	0.984	112	0.144
Motivation	Treatment	0.989	112	0.467
	Control	0.987	112	0.366

Table 1 shows a significant value for the pre-test in English achievement among the treated group sig.= 0.132 and control group sig. = 0.144. Each significant values for pre-test for the treated group and control group p>0.05. This shows that both groups are homogen in terms of English achievement . Significant value for pretest for motivation of treate group sig.= 0.467 while the control group sig. = 0.366. Each significant value for pretest of students' motivation in the treated group and control group p>0.05. This shows that both groups are homogen. As a whole, it can be concluded that the treated group and control group are used in determining the effectiveness of the CIRCOM software on English achievement and motivation.

5.2 Analysis of the Post-Test Student Achievement in English

Independent t-test analysis was conducted to identify the differences of students' English language achievement based on group. Independent t-test analysis results are shown in the table 2 below.

Table 2. Independent t test english student achievement differences based on group

Group	n	Min	standard deviation	t	df	Sig.
Treatment	112	81.64	5.214	17.803	222	0.000
Control	112	65.30	8.194			

Table 2 shows that there are significant differences in the achievements of students studying the English language by using CIRCOM with students studying with the conventional method with the value of t = 17 803 and sig = 0.000. Students who learn using the software CIRCOM (mean = 81.64) have English achievement higher than students studying with the conventional method (mean = 65.30). The findings of this study indicate that CIRCOM software will improve student achievement in English. This can be explained as the use of

learning software CIRCOM as able to provide strength, freedom, love and pleasure to be able to develop the students' motivation to learn. Stevens dan Slavin (1995) states that students need to be motivated to do an effective collaboration skills when they are working co-operatively. The effects of students' active involvement is able to accelerate English language learners' achievement.

5.3 Analysis of the Post-Test Motivation

Independent t-test analysis was conducted to identify differences based on the students' motivation. Independent t-test analysis results are shown in the table 3 below.

Table 3. Independent t test based on the difference motivation

Group	n	Min	standard deviation	T	df	Sig.
Treatment	112	4.23	0.261	6.341	222	0.000
Control	112	3.93	0.419			

Table 3 shows that there are significant differences between motivation of students who learn using the software CIRCOM with students studying with the conventional method with the value of t = 6341 and sig = 0.000. Students who learn using the software CIRCOM (mean = 4:23) has a higher motivation compared to students studying with the conventional method (mean = 3.93). These findings indicate that learning to use the software CIRCOM can increase student motivation. Using CIRCOM software gives attractive appearance with beautiful photos to attract students to learn English. Learning to use the software CIRCOM focused on students' education. Parallel to Slavin (2006), the orientation of the target in one of these is to motivate learning towards achievement of targets.

5.4 The Relationship between Motivation and Achievement of Students in English

Pearson correlation analysis was conducted to identify the relationship between motivation and achievement of English language learners. Pearson correlation analysis results are shown in Table 4 below.

Table 4. The relationship between motivation and achievement of students in English

Relation	English achievement		Interpretation
	r	Sig.	
Motivation	0.364	0.000	Weak

Table 4 shows that there is a significant relationship between motivation and English achievement of students with r = 0.364 and sig = 0.000 (p <0.01). However, the strength of positive relationship is weak. The findings are in line with studies conducted by Fahda Risa (2013) who found that there is a relationship between motivation and achievement. This study also provides new input to past studies to find that motivation and achievement have a positive relationship, and motivation to learn also has a relationship with the use of computer software. These findings contribute to the understanding of the relationship between motivation, computer use and academic achievement.

6. Implication and Recommendation

The results showed that there were significant differences in English achievement of students using the CIRCOM software compared to students using the conventional method (traditional method commonly practiced in schools as learning exercises and discussions in forms of textbook). This indicates that the CIRCOM software has favorable effect on the achievement of English learners. These findings provide input to related parties in the field of education especially school teachers to use CIRCOM software in teaching and learning, as well as increasing student achievement, CIRCOM software is also capable of increasing students' motivation in English. There is a need for ongoing efforts on behalf of the school to encourage the use of CIRCOM software in teaching and learning the English language until the integration of technology in teaching and learning in schools is realized to the maximum extent possible.

7. Conclusion

The use of CIRCOM software is deemed as successful in increasing the achievement of English language and

motivation. Advantages and facilities provided by the CIRCOM software have helped teachers and students to master topics taught in English. Research also has demonstrated that increasing student achievement in English is also influenced by the students' motivation. The increase in students' achievement and motivation by using the CIRCOM software is an alternative for the parties involved in education to get the software to be used in teaching and learning. Educational technology is required to be assimilated in order to increase student motivation and academic achievement. Recognizing that it is highly expensive, a wise alternative funding should be planned by top level management so that it can be realized in the scope and capacity of the economy of a country.

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