The Effectiveness of Animated Video Media to Improve Self-Efficacy and Self-Regulated Learning

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Abstract. The importance of media in learning is to clarify so that the message conveyed is not too verbal, transcends the boundaries of space, time, energy and the five senses. Self-regulated learning is still a core problem in the world of education which is quite alarming. One of the factors that influence self-regulated learning is self-efficacy. High self-efficacy is needed in the learning process to achieve the expected self-regulated learning. This study aims to determine the effectiveness of animated video media to increase self-efficacy and self-regulated learning. This research method uses descriptive qualitative research through the provision of questionnaires and interviews to students in two classes. The results obtained showed that through the t test and MANOVA showed a significant value with a value of 0.000 ($p \leq 0,05$), then animated video media was effective for increasing self-efficacy and self-regulated learning.

Keywords: Animated Video, Self-Efficacy, Self-Regulated Learning

1 Introduction

The present students are brought up in the computerized age. They get a great deal of help from Google products in their daily lives and are exceptionally confident connected with their mobile phones. The technology platform enables students to can access and learns from various places and times utilizing personal computers, laptops, tablets, and mobile phones. Subsequently, utilizing this technology permits students to participate actively in their learning [1].

Learning is a system made up of different components. There are objective components, tools, and materials components, strategy components, media components, and assessment components. Media seems to be an integral part of the learning process. The role of the media is to provide clarity so that the message conveyed is not overly verbal, transcending the boundaries of space, time, energy, and the five senses.

Video media is one of the most popular ICT media that can arrive at the general population. Sablic mentions that one of the fundamental elements of video is the simultaneous use of both auditory and visual signs [2]. The visual aspect is the primary wellspring of information, and

AISTEEL 2022, September 20, Medan, Indonesia

DOI 10.4108/eai.20-9-2022.2324803

the audio is utilized to make sense of the information exhaustively. Through these two elements, students can receive, understand, and remember learning information [3].

Animated video is a learning media that acts as a bridge to help students understand the material. Animation is the modification of visual media, such as images or static patterns, to move and convey more realistic information [4]. The presence of animation may limit the learning experience for students. The material in the book can be visualized and audio touches can also be provided. The utilization of animated video learning media in the learning process can increment student motivation, interest, and learning results [5].

Self-regulated learning is still the core of the problems in the world of education which is quite concerning [6]. Self-Regulated learning describes a skill and activity carried out to increase knowledge, as well as expertise to expand/deepen a material that is carried out responsibly, creatively, designing learning activities on their own, independent or not dependent on others, and having self-confidence [7].

One of the variables influencing self-regulated learning is self-efficacy, which is a skill and activity aimed at increasing knowledge and increasing professional knowledge, which is self-efficacy [8]. Student self-efficacy refers to an individual's beliefs about their expected performance in certain subjects or tasks [9]. Students with lower self-efficacy in science subjects prefer easier assignments, work less, struggle to adjust to school classes, and have lower academic performance [10].

This is very necessary to improve self-efficacy and self-regulated learning of students. If students already have self-efficacy to study physics subjects, these students will be happy and enthusiastic when involved in learning physics and have the potential to grow independence in learning physics [11].

2 Methods

This research was carried out using a quasi-experimental design with a non-equivalent control group design. This research was carried out in an experimental class (using animated video) and a control class (using textbooks).

Table 1. Non-equivalent control group design

Group	Pretest	Treatment	Posttest
Experiment Class	O_1	X_T	O_2
Control Class	O_1	X_C	O_2

Description:
O_1= Early class abilities/characters
O_2= End of class abilities/characters
X_T= Learning using animated video
X_C= Learning using textbooks

3 Result and Discussion

3.1 T-test

a. Independent Sample t-Test

Table 2. Self-Efficacy independent t-test

Data	Class	df	Score Significance	Decision
Pre-test	Control & Experiment	78	0.981	Ho accepted
Post-test	Control & Experiment	78	0.000	Ho rejected

The pre-test data showed that Ho was accepted according to the findings of the independent t-test, indicating that there was no significant difference between the experimental and control classes. The post-test data shows that Ho is rejected because each had a significance value of <0.05, which equals 0.000. Therefore, in the post-test, Ho was rejected and Ha was accepted, so indicating that there is a difference in self-efficacy between students who take learning with animated video media and students who do not take lessons with animated video media.

Table 3. Self-Regulated Learning independent t-test

Data	Class	df	Score Significance	Decision
Pre-test	Control & Experiment	78	0.756	Ho accepted
Post-test	Control & Experiment	78	0.000	Ho rejected

The pre-test data showed that Ho was accepted according to the findings of the independent t-test, indicating that there was no significant difference between the experimental and control classes. While the post-test data indicates that Ho is rejected because the significance value of <0.05, which equals 0.000. As a result, in the post-test, Ho is rejected while Ha is accepted. It can be drawn indicated that there are differences in self-regulated learning between students who take learning with animated video media and students who do not take lessons with animated video media.

b. Paired Sample t-Test

Table 4. Paired t-test results Self-Efficacy Data

	df	Score Significance	Decision
Pair 1 before-after	39	0.000	Ho rejected

The significance value for each was 0.05 according to the findings of the paired t-test. As a result, Ho is rejected and Ha is accepted. Based on the data, the conclusion is that there are

differences in students' self-efficacy before and after participating in learning with animated video media.

Table 5. Paired t-test results Data Self-Regulated Learning

	df	Score Significance	Decision
Pair 1 before-after	39	0.000	Ho rejected

The significance value of each was 0.05 based from the results of the paired t-test. Hence, Ho is rejected while Ha is accepted. Based on this result, the conclusion is that there are differences in students' self-regulated learning before and after participating in learning with animated video media. Each significance level (p) 0.05 is equal to 0.000.

3.2. MANOVA test

Table 6.MANOVA Test Results

	Value	F	Hypothesis df	df error	Sig.
Intercept Pillai's Trace Wilks'	.994	6.258E3[a]	2.000	77.000	.000
Lambda	.006	6.258E3[a]	2.000	77.000	.000
Hotelling's Trace	162.543	6.258E3[a]	2.000	77.000	.000
Roy's Largest Root	162.543	6.258E3[a]	2.000	77.000	.000
Pillai's Trace Class_Group_Factor	.645	69.873[a]	2.000	77.000	.000
Wilks' Lambda	.355	69.873[a]	2.000	77.000	.000
Hotelling's Trace	1.815	69.873[a]	2.000	77.000	.000
Roy's Largest Root	1.815	69.873[a]	2.000	77.000	.000

According to Table 6, Pillai-Spur, Wilks-Lambda, Hotelling-Spur, and Roy's Greatroot test has a significance value of 0.000 < 0.05, implying that Ho is rejected and Ha is accepted. One might say that there are significant differences in self-efficacy and self-regulated learning among students who participate in learning using animated video media. It very well may be reasoned that the utilization of animated video media can improve the self-efficacy and self-directed learning of class X high school students.

According to the results, animated video media was effective in increasing students' self-efficacy and self-regulated learning. Previous research has found that the use of animated videos will improve the quality of learning, where the material presented will be clearer and more interesting, and the learning process will be more interactive through clear audio, image and text communication [12]. Using animation can also enhance the learning experience for students. Animation can be conceptualized according to the will of the designer. Things that are

difficult to be packaged directly in front of students can be replaced by translating them using animation [13]. Animated videos were chosen because animated videos can help students not to get bored, which can create an interesting, comfortable and humorous learning atmosphere, while still paying attention to the main aspects of the learning material elements [14].

4 Conclusion

The obtained results show that the animation video media is effective in improving self-efficacy and self-regulation learning through t-test and MANOVA test, showing a significant value of 0.000 ($p \leq 0.05$). The animated video media in this study effectively improved the self-efficacy and self-regulated learning ability of class X high school students.

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