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The Effect of Digital Comic Media on East Asian Students' English Language Learning Outcomes

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Abstract

The use of learning media at the lecture orientation stage will greatly help the effectiveness of the lecture process and the delivery of messages and lecture materials. In addition to generating student motivation and interest, media can also help students improve understanding, present interesting and reliable data, facilitate data interpretation, and condense information. The purpose of this study was to measure how much influence the digital comic learning media had on Indonesian students' English language learning outcomes. The method used in this study was the experimental one with the control and experimental groups. The results of the data analysis showed that the difference between the pre-test and the post-test of the experimental class was significant. It could be concluded that there was an increase in the students' English language learning outcomes in the experimental class. In fact, the increase in their English language learning outcomes is probably caused by digital comic media.

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1. Introduction

Technological developments are increasingly rapid, both in developed and developing countries, including Indonesia. In entering the current era of globalization, educational institutions have the responsibility to prepare and produce human resources (HR) who are able to face all the challenges of change running very fast around them.

Thus, the implementation of the teaching process in educational institutions requires us to use a variety of teaching strategies to improve the quality of student learning. The use of technology allows students to increase their knowledge and skills and improve their attitudes toward the learning environment. In fact, technology cannot be avoided in real life anymore. Every innovation is created to provide positive benefits for human life. Technological advances that are very influential for students are Information and Communication Technology (ICT). This very rapid development has brought students to the globalization of information. One of the manifestations of ICT is digital comic media, which can be in a written and pictorial mode.

Since comic media seems to be amusing and multisensory, it can be used in education. In fact, it seems that the inclusion of digital comic media in different class presentations may increase learning outcomes. With this in mind, this study intends to examine the effect of comic media on English language learning outcomes. To do so, this study follows an experimental procedure to substantiate its claim in educational contexts.

2. Theoretical Framework

2.1. Definition of Learning

Among psychologists, there is diversity in how to explain and define the meaning of learning. However, both explicitly and implicitly, in the end, there is a common meaning, namely that learning is a process of changing a person's behavior or personality based on certain practices or experiences (Makmun, 2020). Syah (2017), in his book Psychology of Education, cites many definitions of learning. Fricke et al. (2015), in their book, Educational Psychology: The Teaching-Learning Process, argue that learning is a process of adjustment or adjustment of behavior that runs progressively. Meanwhile, other psychologists, such as Hintzman (1976), in his book, The Psychology of Learning and Memory, argue that learning is a change in the organism due to experience that can affect the organism's behavior. That is, learning is a change that occurs in humans or animals caused by experiences that can affect the behavior of these organisms. In another explanation, Syah et al. (2020) add that everyday life experiences in any form are possible to be interpreted as learning. Because, to a certain extent, life experiences may also have a major influence on the formation of a person.

Mastery of information and communication technology is an important matter for students because it can turn into a basis for mastering other sciences in the era of globalization. According to the adherents of the Association of Mental Science, "learning is the enrichment of material knowledge or enrichment of new behavioral responses" (Makmun, 2020, p. 159). Furthermore, Fricke et al. (2015) state that learning is a process of adaptation or adjustment of behavior that takes place progressively. Meanwhile, according to Syah (2017), what is meant by learning is the stages of change in all individual behavior that is relatively permanent as a result of experience and interaction with the environment that involve cognitive processes. The stages of behavior change are explained, in more detail, by Makmun (2020), believing that changes in the learning context can be functional, structural, material, and behavioral.

In learning activities, of course, no learning might take place. Learning might happen as a follow-up to learning activities. That is to say, learning and learning activities are inseparable units. Oemar Hamalik (2014) reveals that learning is a structured combination that includes human elements, materials, facilities, and procedures that influence each other to achieve goals. At the same time, Arifin (cited in Ismail et al., 2020) states that learning is planned by the teacher to be experienced by the learner during teaching and learning activities. Marfilinda and Indrawati (2019) define learning as organizing, creating, or setting up an environmental condition that allows learning to occur in students.

Basically, learning is a transactional communication process that is reciprocal, both between teachers and students as well as students and students, to achieve the objectives that have been set effectively. In this case, students are treated as the main subjects in the learning process, and teachers occupy a fairly central and strategic position to create a conducive learning atmosphere so that they can easily direct students to achieve their goals optimally. In addition, with the development of technology, learning activities can be optimized or developed using appropriate learning media so that students can easily absorb the necessary material.

The tools that can be used as intermediaries between the sender of the message to the recipient of the message are called media. If the media carries messages or information that has instructional purposes or contains teaching purposes, then the media is called learning media. The use of learning media in the teaching and learning processes can generate new desires, interests, and motivation, stimulate learning activities, and even bring psychological effects on students (Hamalik, 1986). In the teaching and learning process, the position of the learning media is very important because, in these activities, the ambiguity of the material presented can be modified by using the media as an intermediary. The complexity of teaching materials can be further simplified with the help of the media. Learning media can represent what the lecturer is unable to convey through certain words. Learning media can also help in concretizing abstract materials. Thus, it makes it easier for students to digest the material (Sa'diah.et al , 2020).

2.2. Digital Comics

One of the learning media in graphic form is digital comics. The use of digital comics as a learning medium has a very important role, namely having the ability to create student interest in learning and helping students to better remember the subject matter. One of the definitions of digital comics was put forward by Shafiyati (2018) that digital comics are an arrangement of pictures that tell stories and give messages to their readers. Furthermore, it is said that digital comics as a whole are a complete story image resulting from the marriage of images and writings, and they, in partial, are an emphasis on the characteristics of all subjects that are able to enrich the story setting, in terms of form, gesture, and sound image elements. Digital comics are a unique medium that combines text and images in a creative way. According to Scott McCloud (2005), in his book Understanding Comics, digital comics are media that can attract the attention of people of all ages because they have the advantage of being easily understood. Simple pictures plus words in an everyday language make digital comics readable by all people.

The era of American comics, hereinafter referred to as the Modern Age of Comics, lasted from the mid-1980s to the present. In this era, various types of comics from various genres and styles are present in the market, comic printing companies are growing, and independent comic artists are emerging. The emergence of online platforms and the adaptation of comics to films is one of the factors driving the booming comic industry. Differently, European comics have their roots in European caricature that began in the 18th century, which then developed into comics in the early 19th century. Rodolphe Topffer, a Swiss cartoonist, is considered the father of modern comics, with his book Histoire de Mr. Vieux Bois as the first comic book (Mccloud, 2005). Famous European comics include Asterix and Obelix, The Adventure of Tintin, Smurf, and Lucky Luke. European comics, according to Hafiz et al. (2018), have several unique characteristics, including:

a. The theme of the stories is close to the daily life of Europeans. Because they take European themes and culture, European comics indirectly became a portrait of their own life (Hafiz et al., 2018). Thanks to that, readers can find out about landmarks and geographical locations in Europe through comics and can learn about their culture.

b. The format and paneling of the stories are similar to a comic strip. On one page, there are 4-5 rows of panels, and the size is uniform. The angle of view which is commonly used is eye level (Hafiz et al., 2018).

c. Even if the pictures are in the form of a cartoon or caricature, the element of realism in the stories is high. European comic artists often do research beforehand so that their stories are

usually close to reality. In addition to the stories, the characters are also described as having strengths and weaknesses, not always being flawless characters. The character of Captain Haddock, for example, even though he is one of the main characters, is described as rude and drunk.

d. The plot that is presented is often straight and based on the original theme without adding another story. For example, if the plot of The Adventure of Tintin is an adventure, then no romance is added.

e. The distinctive character visualization of the stories is unique. European comic characters are described according to their stereotypes and identifying attributes (Arabs with turbans, Africans with black skins, and white Europeans with pointed noses). Body shape is also often very distinctive.

Not only in Japan and China, but the charm of comics also came to explore Indonesia. In fact, comics have existed in Indonesia since prehistoric times, long before modern comics influenced Indonesian comics. The following is a review of the periodization of Indonesian comics contained in the Indonesian comic book by Marcel Bonneff (2018) with an additional review of the periodization of "modern" comics from the book Hysteria Komikita by Dida et al. (2022).

According to Lamb and Johnson (2009), digital comics are simple comics presented in certain electronic media. Thus, it can be said that digital comics are a form of illustrated stories with certain characters that present information or messages through electronic media. The presentation of electronic-based comics allows teachers to make comic stories more interesting by adding animation and sound elements in their presentations. Based on previous research conducted by Wu et al. (2022), the use of digital comics can increase students' understanding of lesson content and increase students' desire to explore and improve critical thinking skills. It is hoped that learning through digital comics will be easier for students to understand so that the learning process becomes more enjoyable. It is found that the use of textbooks that have not been optimal is not balanced with the use of media in the learning process. This resulted in many students feeling bored in following the lessons.

Figure 1
An Example for the Use of Digital Comic-Based Learning Media

So digital comics are the right alternative media for learning because the emotional involvement of the readers will greatly affect their memory, as expressed by the leading neuroscientist, Dr.

Joseph LeDoux (2020). Therefore, the existence of graphic learning media in the form of digital comics will make it easier to convey and receive material on subjects that are considered difficult. Indeed, the above opinion will not be taken for granted by some parties, but if we understand that its main purpose is to convey information/messages, then digital comics become a very effective alternative learning media. Digital comic learning media will create a fun atmosphere for both teachers and students. Therefore, learning conditions in the classroom will be more effective so that the material can be completed on time and well-understood.

Digital comic learning media, which is applied in the field of diffusion of educational innovations, is a learning media used by teachers to facilitate the delivery of the diffusion of educational innovations material to students with the aim of achieving optimal results. The learning media for the diffusion of educational innovation includes graphic media, which is expected to motivate all students to like and want to be smart in the diffusion of educational innovations subject. Learning media for the diffusion of educational innovation consists of:

1. Explanations of material that do not bore the readers
2. Problem examples
3. Answer keys with a detailed explanation of the answers
4. Exercises
5. Answer sheets

From the explanation above, the authors conclude that the purpose of using digital comic learning media as a part of the diffusion of educational innovations is to attract students' attention so that students do not get bored during the course. In addition to the above objectives, the educational media for the diffusion of educational innovation can also help teachers deliver the diffusion of educational innovation subject matter as perfectly as possible. This is reinforced by the statement put forward by Sulaeman (2018), explicating that submission of subject matter that is mostly taken through lectures and two-way questions and answers (teacher-student) and takes place continuously will be boring and will weaken students' performance on different activities. Students largely depend on teachers to carry out writing activities. It is very easy for students to ignore teachers whose teaching methods are repetitive and therefore do not interest them. This may cause a decrease in learning efficiency.

Furthermore, based on the results of research conducted by Simamora et al. (2017), at SMK Negeri 1 Argamakmur Regency on 32 high achievers and 32 low achievers, it is revealed that (1) PowerPoint program media has an effect on students learning outcomes about welding procedures; (2) PowerPoint program media affects learning welding procedures in low achievers; and (3) there is an interaction effect between learning media and high and low achievers' learning the welding procedure with PowerPoint program media. This shows that high and low achievers are more concentrated on following the welding procedure lessons using PowerPoint program media compared to conventional methods; therefore, this program is very suitable to be modified and applied in SMK Negeri 1 Argamakmur.

2.3. Learning Outcomes

Student learning outcomes are outputs that are always expected by people involved in the teaching and learning process, including students, teachers, and parents. According to Sudjana (2017), it can be concluded that learning outcomes can be interpreted as the results obtained by each individual as the level of ability that is poured in the form of cumulative scores or numbers as well as changes in better attitudes obtained by students. Agustini et al. (2020) define learning outcomes as the identification of behavioral and personal changes that are functional, structural, and substantial. In contrast, Syaiful Bakri (2019) limits the definition and mentions that learning outcomes are educational assessments of the development and progress of students with regard to mastery of the subject matter presented to them. Similarly, Sudjana (2017) explicates that learning outcomes are the overall patterns of behavior (cognitive, affective, and psychomotor), which are obtained by students after participating in the teaching and learning process.

Referring to the opinions above, the authors conclude that learning outcomes should be marked by changes in students' behavior after

completing the learning process in the form of positive changes in knowledge, attitudes, and psychomotor skills. The three domains, referred to by Bloom (1956), can be explained as follows:

1. Cognitive Realm

The cognitive domain is the ability to restate concepts or principles that have been learned and the ability to develop intellectual skills (knowledge) at various levels, namely: (a) Recall of data, (b) Comprehension, (c) Application, (d) Analysis, (e) Synthesis, and (f) Evaluation.

2. Affective Realm

The affective domain is related to the emotional development of individual students, such as attitude, appreciation, interest, attention, appreciation, internalization process, and self-character formation. Learning outcomes in the affective domain can be shown by positive changes in student behavior, such as attention to lessons, discipline, learning motivation, respect for teachers and friends, study habits, and good social relations. Bloom (1956) divides the affective domain into five categories, namely: (a) Receiving, (b) Responding, (c) Valuing, (d) Organization, and (e) Characterization.

3. Psychomotor Realm

The psychomotor domain is related to students' movement abilities or manipulations that are not caused by biological maturity. The ability to move or manipulate will be controlled by the psychological maturity of the students themselves.

3. Methodology

3.1. Participants

The total population in this study consisted of 80 male and female students from Indonesia. Their age ranged from 9 to 10 (third grade, class 3A & class 3B). They were all students of SMK Negeri 1 Argamakmur in the 2019/2020 school year. The sampling was done based on the accessibility.

3.2. Instruments

Digital comic media was used, in the form of PowerPoint slides, as a tool for learning in the experimental class. There were also teacher-made English pre-tests and post-tests, including some English language materials for the course.

3.2. Procedure

Based on the teacher's evaluation and the students' achievement scores, the students of both classes had almost the same levels of English language proficiency. The normality of the data was examined through the Kolmogorov-Smirnov test. The homogeneity of the sample was confirmed using the Levens test. Class 3A was the experimental group, and class 3B was the control group. For the control group, the usual lecture method was used, while for the experimental group, digital comic media was used in teaching. Subsequent to teaching the material, the data from both groups were collected and analyzed using SPSS 20.

4. Results

Based on the pre-test and post-test results, the experimental class obtained an average initial test score of 18.42 from a maximum value of 34.00 and an average final test score of 25.6. That is to say, there has been an increase in the students' final scores. On the other hand, the control class obtained an average initial test score of 19.17 and an average final test score of 24. It means that there has also been an increase in the students' final scores. To see if the pre-test/post-test score differences were significant, paired-samples t-tests were conducted.

According to the t-test results, the score difference for the experimental group was significant ($t(39) = -14.70$, $p < 0.05$). However, the difference between the initial and final scores for the control group was not statistically significant ($t(39) = -1.88$, $p > 0.05$). Therefore, it can be concluded that the significant increase in the scores of the students in the experimental group will automatically increase their learning outcome by 45.82%. This increase is caused by the well-structured implementation of digital comic learning media.

5. Discussion

Based on the findings, after the teacher delivered the material using the digital comic learning media, it could be seen that language learning results proved to be more effective than those who did not use the digital comic

learning media (the control group). Learning through digital comics gives positive responses to students, hence creating a more meaningful learning atmosphere. In addition to this, learning through digital comics makes it easy for the teachers to convey the target material and motivate the students to learn and think so that teachers find it easier to guide and instruct the students (Amorim et al., 2017; Spirchagova et al., 2021).

Thus, digital comics are the right alternative media for teaching and learning in general and language education in particular because the emotional involvement of the readers will greatly affect their memory (LeDoux, 2020). This finding is in line with what Pishghadam, Jajarmi, and Shayesteh (2016), Pishghadam, Makiabadi, Shayesteh, and Zeynali (2019) referred to as emotioncy (emotion + frequency of senses), claiming that sense-induced emotions which create emo-sensory involvement can enhance language learning and comprehension.

Overall, the existence of graphic learning media in the form of digital comics will probably make it easier to convey and receive material on subjects that are considered difficult. Using digital comics learning media will create fun for both teachers and students while improving the language learning quality. Based on the findings obtained from the study, the authors can draw several important conclusions as follows:

a. The students responded positively to learning through digital comics.
b. Language learning outcomes obtained by students after using digital comics learning media had a significant increase.
c. Language learning outcomes obtained by students who did not use digital comics learning media did not have a significant increase.

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