

The Effect of Using Podcast-Based Video on Student Learning Outcomes

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Abstract

Podcasts are media files distributed via the internet that can be accessed repeatedly by its users. This study aims to determine the effect of podcast-based video media on the learning outcomes of learners. The subjects of this study were educational technology students class of 2023. data collection was carried out using tests. This research includes quasi-experimental quantitative research. This research uses the Independent Sample T-Test Test. From the results of data processing, it was found that the Asymp.Sig (2-tailed) value was $0.000 < 0.05$, meaning that the alternative hypothesis (H_a) could be accepted. Thus proving that the average of the experimental class exceeds that of the control class. From this, it can be said that there is an effect of using podcast video media on learning outcomes, on the learning media material of 2023 offering A and B educational technology students who use podcast media compared to the learning outcomes of offering C and D students who do not use podcast media.

Keywords: Podcasts; Video; Learning Outcomes

1. Introduction

Education has a very important role in human life. The learning process is an inseparable component of education. Therefore, it is necessary to improve and develop education in order to produce learners who have good quality. Technology can be a medium to motivate learners and improve learning outcomes, as seen from the results of scores in the form of numbers or letters that learners get after taking tests or exams (Windasari and Syofyan, 2019). When used effectively, learning media can make learning more interesting, interactive, and personalised. This can help learners stay motivated and focused, and help them learn more effectively (Altum, 2015).

The selection of learning media is very important in achieving learning objectives. Sometimes in the teaching process, there is a communication failure or the material fails to be conveyed properly, to minimize this educators can design learning strategies by utilizing various media and learning resources (Sanjaya, 2011). Learning media that has a high influence is video media (Darwis, 2016). Learning by using video media also affects auditory, visual, and kinesthetic learning styles. The use of video media can make it easier for learners to learn and increase learning motivation, and its use becomes practical and easy to use because it can be uploaded online (Darwis, 2016). the use of video can improve the ability to remember material in the brain can attract attention and be more personalised because videos contain intonation and expression (Istanto and Indrianti, 2011).

Podcasts have become one of the fastest-growing media in recent years. (Locker, 2018) revealed that podcasts reach more than 155 countries with more than 18.5 million episodes. The term "podcasting" comes from Apple's iPod portable music player to describe the activity of listening to audio files on a portable media player (Hammersley, 2004). Podcast

is a medium capable of creating and distributing personal audio programs freely in various formats that can be accessed by many people around the world (Zellatifanny, 2020). Meanwhile, according to (Evans, 2008) podcasting is in the form of audio and video broadcasts that are launched on the internet and can be automatically downloaded when synchronized to a computer or mobile phone. Podcasts are useful for learner-centered forms of learning by giving learners the option to learn at their own pace and comfort.

As a learning resource podcasts have several advantages, including reusability and replaying, easily accessible through various media such as MP3 players, MP4 players, and mobile phones, and motivating students to use flexible learning media (Copley, 2007). In the field of education, the use of podcasting technology is widely used in universities. Podcasts provide a more flexible learning environment. Podcasts created by educators can be audio videos of various activities such as lectures, interviews, and book readings (McHugh, 2016). An added advantage of using podcasts is that the words used can influence the learner's cognition (Hew, 2009). However, the learning experience is passive because it only focuses on audio or video (McKinney, Dyck, and Luber, 2009). In this case, podcasts are highly recommended as a complementary learning resource for lectures.

To strengthen the discussion about podcasts as a medium that can improve student learning outcomes in Indonesia, researchers have analyzed several previous studies that are used as references in research. Such as research conducted (Panjaitan, 2021) on 'Socio demographics and Podcast User Satisfaction in Indonesia' which aims to look at socio demographic factors and adaptation of podcast users in Indonesia. This study proves that podcasts can meet user expectations and they are satisfied with the ease and influence felt after listening to podcasts. Then researchers found research conducted by (Zellatifanny, 2020) with the title 'Trends in Audio on Demand Content Dissemination through Podcasts: An Opportunity and Challenge in Indonesia. It was found that the existence of audio on demand through podcasts can present several opportunities that can be utilised by listeners such as media that provides information, opportunities for monetization for podcasters, and others.

Based on the explanation of several previous studies, researchers want to make the first research that discusses the effect of podcast-based video media on student learning outcomes. As a media that supports students to improve learning outcomes. Until now, from several previous studies contained in the previous discussion, researchers have not found research related to the topic of the current research.

Learning outcomes are changes in the knowledge, skills and attitudes of learners that occur as a result of their participation in learning activities. Changes in learners' knowledge, skills and attitudes can be measured to assess the effectiveness of the learning process (Hamalik, 2011). According to (Sudjana, 2005) learning outcomes are changes in individual behavior that include cognitive, affective, and psychomotor aspects. Meanwhile, according to (Purwanto, 2019) learning outcomes have an important role as a determinant in achieving educational goals. Therefore, learning outcomes need to be in line with the goals to be achieved, besides that, learning outcomes reflect a change in behavior after learners experience a learning process.

Overall, learning outcomes are a measure for educators and educational institutions to evaluate learning programs and take necessary actions to improve the quality of education.

as well as learning outcomes can also help to determine the level of success of learners in understanding the material and practicing the knowledge gained.

2. Method

This type of research uses quantitative research methods and quasi-experimental design. Quasi-experimental design has two forms of design, namely: Times-Series Design and Nonequivalent Control Group Design (Sugiyono, 2014). Data collection is carried out with research instruments, then statistical analysis is carried out to confirm the hypothesis that has been determined. In quantitative research, concrete data in the form of numbers is decisive in proving the hypothesis. The quantitative method was chosen because the data to be processed is in the form of ratios and the core of this research is to find out how far the influence between the variables studied.

This study used a post-test nonequivalent control group design. namely giving a post test after treatment to each group that was selected non-randomly. In carrying out the research, the researcher did not choose a random sample to determine the subjects involved in the treatment. Researchers use classes that have been determined. This limitation exists because researchers can't change a structured class (Setyosari, 2016). The group was divided into 2 classes, namely the experimental class and the control class. the experimental class was given treatment in the form of using podcast-based video learning media. while the control class was given PowerPoint learning media. after the learning was complete, each group was tested with a final test (posttest).

Tabel 1. Research design

	Variable	Posttest
Eksperimen	X	Y1
Control	-	Y2

Description :

X : Treatment (Learning using podcast media)

Y1 : Posttest of experimental group

Y2 : Control Group Posttest

The effect of using podcast media will be seen from the post-test scores of the experimental and control classes. If there is a difference in the scores of the two classes. where the experimental class score is higher than the control class, it can be formulated that the provision of podcast media treatment in a learning process has an influence.

With the hypothesis that has been made by the researcher.

H0 : There is no difference in student learning outcomes between students who use audio-visual media and students who use PowerPoint media

Ha : There is a difference in student learning outcomes between students who use audio visual media and students who use PowerPoint media.

The research was conducted at the State University of Malang with the research subjects being educational technology students class of 2023 in the visual graphic media course with a total of 90 learners divided into 4 classes. The data collection technique uses a posttest which includes learning media material. The form of this posttest is an objective test with 4 answer choices. After the test data for each class is collected and processed using SPSS 27 by conducting 4 types of analysis, namely Descriptive analysis to describe the general description, the analysis prerequisite test by looking for Normality and Homogeneity, then the Hypothesis test using the Independent Sample t-test for parametric and Mann Whitney test for non parametric.

3. Results and Discussion

3.1 Result

The quiz instrument was first conducted validity test and reliability test. The validity test obtained the results, namely 17 questions were declared valid and 3 questions were declared invalid. While the reliability test obtained a result of $0.612 > 0.60$, meaning that the question is reliable and can be used.

Data obtained from research is then processed and presented through tables according to descriptive statistical techniques. The data presented is a general explanation of the data obtained during field research.

Table 1. Descriptive Analysis

	N	Mean	Std Deviation
Experiment	45	67.44	7.509
Control	45	58.11	8.679

Based on the data table above, the statistical data shows the values of the two sample groups, namely the experimental class and the control class, each of which has 45 subjects. The control group obtained an average value of 58.11, a minimum value of 40, and a maximum of 75 with a standard deviation of 8,679. The experimental group obtained an average value of 67.77, a minimum value of 50, and a maximum value of 85 with a standard deviation of 7,509. The data involved the average value of the results of the class that used podcast-based video media was superior to the class that did not use podcast media.

Table 2. Test of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Experiment	.150	45	.012	.959	45	.116
Control	.142	45	.024	.952	45	.063

Based on table 2 shows that the experimental class value obtained a significance value of 0.116 and it can be seen that the significance value is greater than 0.05, it can be concluded that the data from the experimental class is normally distributed. While the control class value obtained a significance value of 0.063 and it can be seen that the Significance value is greater than 0.05, it can be concluded that the data from the control class is normally

distributed. The data in table 2 shows that the data on the quiz instrument is normally distributed, so a hypothesis test will be carried out using the parametric test Independent Sample T-Test.

Based on the previously mentioned significance value, if the significance value is > 0.05, it can be concluded that the data is considered to have the same or homogeneous variance distribution.

Table 3. Test of Homogeneity

		Levene Statistic	df1	df2	Sig
Eksperimen	Based on Mean	45	.012	.959	45
Control	.142	45	.024	.952	45

Table 3 shows that the significance value on Based on Mean is 0.196. This is by the criteria previously set, if the significance value on Based on Mean is $0.196 > 0.05$, it can be concluded that the data is considered homogeneous or uniform.

The hypothesis is a temporary answer made based on the formulation of the problem set by the researcher (Sugiyono, 2013), therefore it is mandatory to test the truth empirically. Hypothesis testing was carried out using the parametric test Independent Sample T-Test (T test).

Table 4. Independent Sample T-Test

		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Class	Equal variances assumed	1696	.196	5.455	88	.000	9.333
	Equal variances not assumed			5.455	86.2 17	.000	9.333

Based on Table 4, it is known that the hypothesis is accepted because the Asymp.Sig (2-tailed) value is 0.000, so it can be concluded that $0.000 < 0.05$, and H_a is accepted. If H_a is accepted, it means that there is a significant influence in the use of podcast-based video media on the learning outcomes of 2023 class of Educational Technology students at Malang State University.

3.2 Discussion

The use of learning media is used by educators to convey or disseminate information or material, so that the information conveyed can reach the learners (Setyosari and Sihkabuden, 2005). Learning media has a good role in optimizing quality in the learning process to learning outcomes. One of them is using media that is efficient and can be used anytime and anywhere, namely podcast-based video media. Podcasts are one of the video media that is very suitable for use in learning in the millennial era, because the media concept is easy to create and use, so it is easy to create and access by anyone.

This study aims to determine whether there is a difference in the use of podcast-based video media with learning using PowerPoint media on student learning outcomes. The research method used is a quasi-experimental quantitative approach with a posttest-only

control group design on learning media material. This study involved four offerings, namely classes A and B as experimental classes that used podcast-based video media, while offering C and D as control classes as classes that did not use podcast-based video media. Previous research shows that podcasts can be a medium that is easily accessed and used by learners. Therefore, the research findings in the application of podcast-based video media can be used as learning media that can improve student learning outcomes.

The podcast used in this study is a podcast that has been produced by the researcher himself. Podcasts are media files distributed via the internet that can be accessed repeatedly by its users. By using podcasts, users who do not understand the content or material presented can hear and see the material again.

After research on the use of podcast-based video media on learning outcomes conducted in the class of 2023. In this research process, it was carried out over two days where Offering A and B became experimental classes where a series of studies were carried out by delivering learning instructions before starting learning, then learning was carried out using podcast

based video media after learning using podcast media then a post-test was carried out which aims to determine the knowledgeability of students after learning using podcasts. While in offering C and D which became the control classes with a series of studies carried out by delivering learning instructions before starting learning, then learning was carried out using PowerPoint media without using podcast-based video media, and then a post-test was carried out which aimed to determine the knowledgeability of learners.

The results of the post-test of the experimental class (Offering A and B) have an average value of 67.44, a middle value of 70, and a value that often appears as 70 with the lowest value of 50 and the highest value of 85. The control class (Offering C and D) has an average value of 58.11, a middle value of 60, and a value that often appears as 60 with the lowest value of 40 and the highest value of 75.

Based on the results of normality and homogeneity testing in both groups, it can be concluded that the data in both groups show normal and homogeneous distributed data. after the data is collected, calculations can be made using parametric statistical methods, namely the Independent Sample T-Test test to test the hypothesis. The results of hypothesis testing conducted using SPSS 27 are known to have an Asymp.Sig (2-tailed) value of 0.000. There are calculation criteria, namely the Asymp.Sig (2-tailed) value <0.05 , so H_a is accepted. Because the Asymp.Sig (2-tailed) value is less than 0.05, and H_a is accepted.

Based on the previous analysis, the conclusion can be drawn if (H_a) is accepted, while (H_0) is rejected, identifying a significant difference in learning outcomes after hypothesis testing between the experimental and control classes. Thus, it can be concluded that the use of podcast-based video media influences learning outcomes in offering A and B (experimental class is higher than offering C and D (control class)).

The results of this study state that the application of podcast-based video media in the experimental class influences student learning outcomes which is in line with NamazianDost's stating that podcast media is more effective and accommodating than using conventional learning techniques because it can improve the ability of learners and the

motivation of learners in learning (NamazianDost, Bohloulzadeh and Rahmatollahi, 2017). Another study from the research of Abdul Rahman, et al concluded that podcasts have more potential to help learners in improving their understanding (Rahman, 2018). Another result of previous research conducted by Riddel found that the application of audio podcast media in the classroom runs smoothly and can also increase learner motivation (Mambrisauw, 2020). This can happen because when learners access podcasts, their auditory and visual senses focus on the podcast media which creates interest and motivation. Another finding shows that learners agree to use podcast media in helping them learn, and have the willingness to use podcasts as media (Harahap, 2020).

In research (Aziz et al., 2022) stated that in the learning process, learner motivation is very necessary because the implementation of learning will not go well if without learning motivation and podcasts can provide high enough learning motivation. This podcast video media can be accessed anywhere and anytime without wasting a lot of time to see it because it is quite simple and the ease of podcast videos is in great demand (Lavircana, 2020). Meanwhile, according to (Merhi, 2015) In the development of video podcast media, it has been very rapid because there are new features and uniqueness. When viewed from previous research, there is continuity with the results of the author's research where the class given learning using podcast video media has a higher learning outcome value than the class that is not given podcast media, this happens because one of them is influenced by the learning motivation of the learners in receiving learning material.

Likewise, the research of Hilmatusnisa et al revealed that there was an influence in the use of podcasts in listening learning, this can be seen from the difference in the average class scores using podcast media and conventional media (Hilmatusnisa: 2018). Meanwhile, Ali Mobasheri stated that podcasts are not only useful in the field of education, but in the field of medicine this technology can be used for research dissemination purposes, podcasts are referred to as an innovative tool (Mobasheri and Costello, 2021). Another result found is that podcast media can help learners in listening skills because it can provide direct access to material to learners, can increase independent learning, then increase confidence in language learning and create an active learning atmosphere (Yoestara and Putri, 2019).

4. Conclusion

This study was conducted to prove the existence of improved learning outcomes by comparing two classes with different treatments, namely, there is an experimental class that is given treatment by providing podcast video media while the control class is given PowerPoint media. Learning outcomes are seen from the posttest results of both classes, according to data processing and analysis, it can be said that there are differences between the posttest results of experimental class learners and the control class. The difference in these results can be seen from the results of the Independent Sample T-test test with an Asymp.Sig value. (2-sided test) of 0.000 where the value of 0.000 is less than 0.05 and H_a is accepted. Where there are differences in student learning outcomes between students who use video media and students who use PowerPoint media. So it can be concluded that using podcast-based video media can improve student learning outcomes.

There are suggestions for educators to use podcasts as a solution to increase effectiveness in learning both directly and remotely. As for suggestions for further research, it is recommended to follow the development of learning media technology that can

support learning so that it is more efficient and can be used in all conditions and learning styles so that it can improve student learning outcomes.

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