

## DEVELOPMENT OF VIDEO-BASED DIGITAL CONTENT LEARNING FOR TEACHING UNIVERSITY STUDENTS

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APA Citation: Arochman, T., Imron, A., & Hantari, W. C. (2024). Development of video-based digital content learning for teaching university students. *English Review: Journal of English Education*, 12(2), 675-684. <https://doi.org/10.25134/erjee.v12i2.7617>

Received: 28-02-2024

Accepted: 27-04-2024

Published: 30-06-2024

**Abstract:** Nowadays, the development of technology is rapid, necessitating students to keep up with them. Amidst the epidemic, learning was conducted online, necessitating educators to effectively utilise internet resources for instructional purposes. Regrettably, the ongoing epidemic has brought about numerous challenges in the realm of education, encompassing both the content being taught and the instructional tools employed, ultimately leading to a decline in learning outcomes. This study emphasises the creation of video-based digital resources for educational purposes, which are then included into the learning process. The methodology employed in this study was research and development. The media development process utilised the Four-D paradigm, as proposed by Thiagarajan and Semmel. The video-based digital content learning offers interactive learning through videos that are integrated with the ELITA learning management system. A sample of 25 students at Universitas Tidar was subjected to testing of the media during the covid-19 epidemic, which yielded positive acceptance results. The findings of this study suggest that utilising video-based digital information is both viable and efficient in enhancing student motivation and improving learning outcomes. This suggests that incorporating digital content learning into online education can be beneficial for instructing university students.

**Keywords:** digital content learning; video; teaching; students; online learning.

### INTRODUCTION

In the 21st century, education in the digital era necessitates instructors to proficiently use Information and Communication Technology into every facet of learning (Hartman et al., 2019; Mustapha et al., 2021; Voithofer & Nelson, 2021). This condition makes educators as the main role holders in delivering the material challenged to be able to adapt to meet their scientific competencies according to the demands of the times. However, education is currently shifting away from a teacher-centered approach but must be student-centered (Marpaung & Azzajjad, 2020). The success of the learning process cannot be separated from the role of learning media, as utilising suitable media helps optimise student learning outcomes. The use of media in education can assist teachers in delivering material so that students can

comprehend it (Arochman et al., 2023). That's why choosing appropriate media in the digital era are needed for educators in delivering their materials.

The digital era encompasses the use of digital media in many facets of life, including the process of learning (Lestari, 2020; Mijatović et al., 2019). Furthermore, for digital learning to be effective, learners and teachers must be prepared to engage in interactive communication using information and communication technology, such as computers, laptops, cellphones, and other devices connected to the internet (Händel et al., 2020; Novaliendry et al., 2022). There are several digital learning resources, including infographics, podcasts, PowerPoint slides, animated video, and learning video. Thus, videos are the most popular media by teenagers and adolescents.

Haleem et al. (2022) convey that in the

contemporary educational environment, the digital classroom has undergone significant changes for the better. Integrating technology into the classroom experience has evolved to its fullest extent, resulting in more interactive instruction (Arochman & Fortinasari, 2024; Delimasari et al., 2023). With access to internet resources and digital classrooms, students now have the opportunity to independently explore various object, one of them is video based material.

Video is a media that combines auditory and visual elements to convey concepts, principles, methods, and theories for better understanding of educational content (Divayuda et al., 2021; Wicaksono & Pristiwati, 2021). Video is a multimedia format that integrates audio and visual technology to produce a lively and captivating presentation (Othman et al., 2022). Furthermore, video has a function as a learning medium, namely the function of attention, affective, cognitive, and compensatory function (Pamungkas & Koeswanti, 2021; Pardede et al., 2021). Because video is able to combine visual (image) with audio, it can help the audience, in this case students who are weak and slow to grasp a message, readily accept and comprehend the delivered innovations (sound). (Anggraeni et al., 2021). Video has the following benefits: (a) it can increase motivation; (b) it clarifies the message's meaning, allowing students to comprehend it and facilitating mastery and achievement of delivery objectives (Riyanto, 2020).

As we know today, learning videos serve as a medium for teachers and students to offer and access educational material and references (Asri et al., 2022; Sablić et al., 2021). Video learning is becoming a major concern in the last three years, the perception from “expensive, good to have” for L&D strategy, to “new normal”. In teaching and learning activities Video is a visual and audible instructional medium purposed to delivered the material for students (Deng & Gao, 2023). Generally, students are easily to learn using image and sound are presented simultaneously or non-simultaneously. Moreover, a video is a multimedia format that may present visual pictures and audio concurrently (Puspitarini et al., 2019; Varghese et al., 2020). From the preceding description, video that be used in learning can simultaneously display images and sound so that the learning process can run well or can be said to be in accordance with the desired learning objectives.

In a research conducted by Tan et al. (2020), a comprehensive elucidation is provided regarding

the efficacy of audio-visual learning videos in ameliorating the academic performance of students encountering learning impediments. The research underscores the pivotal role of such multimedia resources in facilitating comprehension and retention among students grappling with conceptual abstraction. Tan's findings shed light on the transformative potential of audio-visual aids in narrowing the gap between learners with varying levels of aptitude, fostering a more equitable educational landscape.

Unfortunately, not all educators or lecturers can make effective and efficient learning videos so that students can comprehend the material with greater ease. Especially during a pandemic, many educators and lecturers who deliver materials only use zoom and google meet media (Aini et al., 2021; Ramadani & Xhaferi, 2020). Some students find it difficult to access the application due to quota limitations and unstable network factors. Even though most of them assume that the use of video media is more profitable for them because later they can access further if their connection is stable.

This study is a direct response to the significant impact of audiovisual media on learning during the epidemic as a medium to facilitate the learning and teaching process carried out by teachers or lecturers. At Universitas Tidar, the pedagogical approach of Project-Based Learning and Case-Based methods mandates students to cultivate the application of their acquired knowledge within specific contextual frameworks. This educational paradigm compels learners to transcend theoretical understanding and engage in practical problem-solving endeavors, thereby fostering a dynamic learning environment that nurtures critical thinking skills and real-world application. Henceforth, there arises a necessity for the conception of a design that adeptly bridges the learning paradigm with the student's preference and accessibility.

According to the findings of the initial analysis of the learning process at Universitas Tidar, it was found that student learning activities tend to be monotonous. Students focused more on just listening to information from the lecturer and are also given too many assignments. Although they have been facilitated with media zoom and google meet but most of them tend to be less active and even most of them close their camera. The most prominent impact was the low motivation to learn and the value of learning outcomes achieved by students. Therefore, lecturers must possess the capability to create and

construct educational materials with a specific focus on enhancing the learning process by making it more tangible and authentic. Therefore, the utilisation of video media is a viable solution for teachers to effectively convey abstract concepts.

This study is based on the argument that the development of video media can not only support motivation and learning outcomes. Because students are happier and more interested in learning, video can facilitate the acquisition of knowledge and skills in a particular area (Ryan, 2021). On the other hand, the advancement of video media is highly advantageous for both educators and students (Coleman & Money, 2020). In this way, the development of learning media can certainly change the traditional (conventional) teaching styles and methods of teachers into student-centered learning (student centers).

There are some relevant studies related to the use of video-based learning for learning that have been conducted by some researchers (e.g. (Lacey & Wall, 2021; Sablić et al., 2021); however, the majority of research focused on improvement of learning.

Based on the description of the problem description and relevant study above, there are limitations of lecturers in designing learning video media, especially during this COVID-19 pandemic. Therefore, researchers are interested in designing digital content learning using video. The aim of this study is to create video-based digital content for educational purposes that can support motivation and learning outcomes for students. Then, the production of the resulting learning video which is used as an alternative learning media during teaching and learning process. Thus, this study addressed questions: (1) How is the procedure of developing a video for learning at Universitas Tidar? (2) Is there any significant different between students used a video before and after the learning?

## METHOD

This study utilised the Research and Development technique (R&D). Referring to the definition of the Four-D model by Thiagarajan (Thiagarajan, 1974), R&D is used to develop and validate products in the form of learning tools that are used as new experiences for students. The selection of this research methodology is employed to create educational media products in the form of videos that enhance student motivation and improve learning results. There

are two scopes in this research, namely product development and product validation. The scope of this product development focuses on learning to write to support motivation and achievement of learning outcomes. The learning media developed is video media which then goes through a validity test by a team of experts. Validation is carried out by experts covering the fields of; (a) Linguist; (b) Media Expert and (c) Material Expert.

This study was conducted during March - July 2022. Respondents involved in this study were Universitas Tidar 3rd semester students as many as 13 students from class 2 and 12 students from class 3 as a place for product trials from the user side. The selection of students was done randomly for participants who were willing to participate and assist this research and consider the gender aspect and the ability aspect of students who have homogeneous abilities, namely in terms of achievement, they have the same excellence.

The process for creating this product follows Thiagarajan's Four-D paradigm, which consists of four stages: define, design, develop, and distribute. The steps and procedures for developing the Four-D model are shown in table 1 as follows.

Table 1. *Procedure for developing videos*

Four-D Model	Research Activities
Define	1 Analysis of student needs 2 Identification of problems 3 Concept of learning media
Design	1 Learning objectives 2 Planning of an instrument 3 Specifications of learning
Develop	1 Developing Instruments 2 Developing learning videos 3 Draft of videos
Dissemination	1 Expert validation analysis 2 Revision of the products 3 Try-out

Researchers implemented procedure for developing videos using four-D model. Each model had each research activities. The data obtained in this study consisted of two data sources, based on the data of qualitative and also quantitative. Qualitative data were obtained from interviews and comments, student responses and insights from professionals in the fields of material, language, and media. While the researchers got the data of quantitative from the results of filling out expert validation sheets and student responses, learning motivation instruments and assessment of learning outcomes, namely pretest and posttest. The data obtained from the results of the development are then

analyzed to obtain criteria for validity, practicality and effectiveness. The data obtained from the expert validity scores were converted in the form of a scale of six and then converted into qualitative criteria in table 2 as follows.

Table 2. *Criteria of product validity*

Scale	Categories
0 % - 20 %	Not Eligible
21 % - 40 %	Less Eligible videos
41 % - 60 %	Fairly Decent
61 % - 80 %	Eligible
81 % - 100 %	Very Eligible

If the video fulfills the minimum requirements, it will be integrated to E-learning Universitas Tidar, or called as ELITA. ELITA is a Moodle based learning management system. This media is specifically developed to assist professors and students in their teaching and learning endeavours. Meanwhile, the model's efficiency was tested in two stages by analysing the data obtained from distributing questionnaires on motivating instruments and assessing student learning outcomes after using learning videos. The paired sample t-test was employed to ascertain the disparity between the mean pre- and post-test scores, as shown by the difference in their averages for each group between field tests with the calculation using SPSS program.

## RESULTS AND DISCUSSION

The steps for developing video media start from the Results of the Needs Analysis. The design phase of product development starts from the analysis of student needs, material analysis, task analysis and definition of learning goals. The preliminary study was done through observation, interviews and questionnaires at Universitas Tidar. Several problems were found as stated in the summary of table 3 as follows:

Table 3. *Summary of the initial study*

Aspects	Finding
Learning models that have been done during the pandemic	Google meet, zoom, whatsapp group, edmodo, quizziz, google classroom, google docs
Learning experience during a pandemic	Some participants admitted that it was difficult to understand and focus on learning. Due of the device's lack of attention, it is susceptible to many influences within the home. In addition, when online they often feel

	sleepy and their focus is divided.
Perceived digital content learning based learning	Some lecturers have used content learning-based media, but some students do not understand when they are explained using the media.
The most popular digital content learning based learning model.	After zooming, video-based learning is the most desirable learning media with explanations that can be easily understood because through video it is like watching a lecturer explain directly. Furthermore, students must feel tired especially in one day they have to study several courses. Video-based learning makes them a little refresh their brain.
Ideal learning videos	Fascinating and comprehensible video content. A detailed and clear explanation but the duration is not long 10-15 minutes. In addition, Videos are supplemented with explanations and animations that facilitate our comprehension of the content presented.

Based on table 3 of the initial analysis above, it is illustrated the need for problem solving in order to support student learning outcomes and motivation. The steps taken in problem solving are as follows: a) designing learning media according to the analysis of student needs, b) applying various learning media that can support student motivation and results; c) the need to develop an attractive learning video media design for students so that curiosity will increase.

The initial analytical findings serve as the foundation for the development of product design. The product development stage begins with describing the competencies that are used as a reference for designing learning video media. The media is created via Microsoft PowerPoint and subsequently enhanced with supplementary animations and effects so that it is converted into video. The result of this product design is referred to as draft I. Draft I is validated by a team of linguists; Media Experts and Material Experts as many as 3 experts to get input. In general, the product is suitable for use, it just needs to be adjusted for color and font size. The following can be seen in table 4 the results of the test of the validity of the expert team.

Table 4. Results of the expert team's validity

Validators	Material	Learning Goal	Video
1	82	84	86
2	84	88	88
3	80	86	88
Total	246	258	262
Categories	Very good	Very good	Very good

The validity of the test instrument saw both motivation and learning outcomes analyzed through item/item analysis. The findings on the validity of the motivational questionnaire and the achieved learning outcomes are presented that each item was very good, in the sense that the learning media had very good quality. This is because each material, learning objectives, and learning videos have a very good category, so the video model developed meets the valid criteria. Consequently, it is thought that this video approach has the capacity to enhance student motivation and improve learning results. Furthermore, a screenshot of learning video which is created in figure 1 as follows.

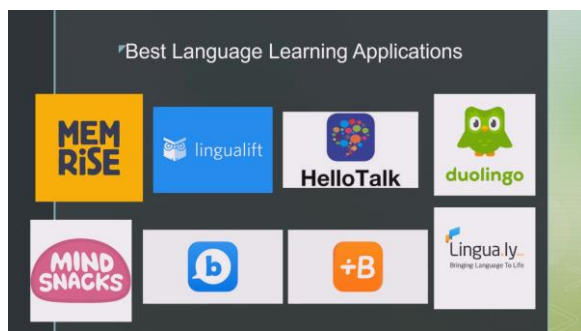


Figure 1. A screenshot of learning video

Based on the figure 1, comments from the expert team are that the color design is not flashy and is suitable for teenagers. The font size in the title is also not too small. While the picture from the color side depicts a green color that is suitable for their age. The title's size is prominently displayed, making it easily legible for students. The resulting video in the image above is referred to as a video draft. The video draft was then tested for practicality and implementation. The practicality test involves 2 lecturers who teach the same course to assess and provide input on the developed learning media in terms of design, material, attractiveness and level of relevance. The results of interviews with the two lecturers are as follows:

"... the media product developed in my opinion is very good in terms of color, design and interesting material, there are pictures that make it easy and can help students when studying

independently at home..." (Interview, Lecturer 1/2022)

"... interesting media, clear enough to be given to students without the need for assistance during the learning implementation process, the explanations are generally quite clear... generally good" (Interview, Lecturer 2/2022)

Furthermore, the implementation test involved 25 students representing each class that was the subject of the research. The results of the participants' assumptions describe the interest in learning video media products.

"... really like learning with this video media... (Interview/Participant 1/2022), ...even though it's not the first time I've learned to use video, I like it good... (Interview/Participant 2/2022), ...it is quite clear, can be studied again when one day I forget... the material. (Interview/Participant 3/2022)

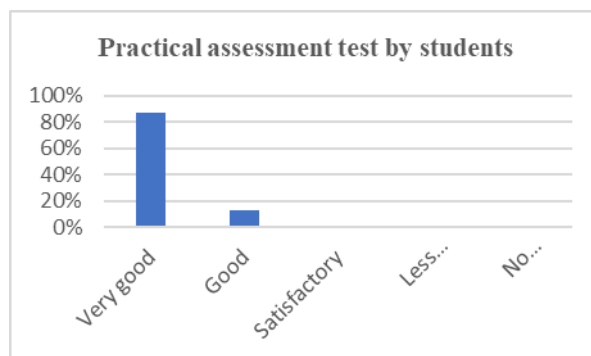


Figure 2. Practical assessment test by students

The next test is a field test involving 25 students from semester 3 as many as 13 students from class 2 and 12 students from class 3. Students also have a role in providing an assessment seen from the results of practicality tests on students in learning by using video. This practicality test aims to describe the level of student response in learning using video. The results of the student practicality test assessment through student response questionnaire sheets. The following figure 2 is the percentage of student practicality test results:

According to the statistics presented in Figure 2, the practicality test results of students who used the developed video model yielded an average score of 87%. These results indicate that students' responses to learning using the developed video model are said to be practical according to students.

Table 5. *Result of paired sample t test*

	Paired Differences							
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
Pair 1 posttest - pretest	3.9375	3.68902	.65213	2.60747	5.26753	6.038	24	.000

The second step is to determine the effectiveness test seen from the ability of students to master the material with a video model through a pretest before using video in learning and posttest after using video in learning. Data from the test results of students' abilities by looking at the average value and deviation of standard and examining the outcomes of the likeness test with a t-test with a significance level of 0.05%. Then proceed with looking at the results of the normalized t-test. This is conducted in order to ascertain the disparities in students' abilities after and before implementing the video model. The researchers need to compare the t-count and t-table. If the t-table is greater than t-count, it can be said that there is no significant difference. Meanwhile, if the t-test value is bigger than the t-table value, it can be concluded that there is a significant difference and this medium is beneficial for enhancing student motivation and improving learning results.

Table 5 displays the outcomes of the first examination scores and the concluding examination scores, namely the t-test value of 6.038 with a p value of 0.000. While the t-table value for =5% is 1.697. It is evident that the t-test value (6,038) exceeds the t-table value (1.697). This condition indicates a substantial disparity between the original and final test scores. The results suggest that the impact of video-based learning can support student motivation and learning outcomes at Universitas Tidar. Thus, the use of this film as a learning medium can be considered helpful in enhancing student motivation and improving learning results.

The aim of this study is to develop video based digital content learning in writing courses. This product development process used research and development by following the research steps of the Four-D model. During the COVID-19 epidemic, the choice of media is determined by the requirements of students and the significance of interactive educational materials. Through the development of video media can generate memory, mastery of the material and learning does not get boring quickly.

Based on the views of students, face-to-face class could be changed into online learning in that situation. However, some of students felt that the explanation when lecturers did in online learning, example: zoom or google meeting, often made students did not get the whole of learning. In addition, many of students were difficult in finding good connection when they did online learning. Thus, most of them asked lecturers to made a video-based learning media instead of online meeting. Hence, the pupils required the creation of video-based learning materials.

The development of this video-based learning media begins with text then images and also animations so that learning becomes more fun. The process of developing video media is made in such a way that there are at least 2 elements that need to be considered, namely in terms of validity, practicality and attractiveness. a) elements of validity include elements of material, language and media. b) elements of practicality include conformity to the material and learning objectives. c) elements of attractiveness include the selection of shapes, colors, images and sizes used. All three must be used as references in the process of developing video-based media so that the resulting product is effective and efficient to use to support student motivation and learning outcomes.

The findings of this study demonstrate the efficacy of the video learning media paradigm can be used as one of the learning media that can stimulate student activity in learning, because it facilitates the acquisition of knowledge for pupils, ensuring that they remain engaged and avoid boredom during the learning process. This is evident when the learning motivation of students is greatly increased after using the video model. Students seem to learn with pleasure and enthusiasm. This finding is in line with, to date, the practise of online learning has inherent limitations that prevent it from fully meeting the demand (Manurung et al., 2022). Several essential limitations pertain to the state of the kids. Online learning, despite its imperfections, has the capacity to cultivate creativity by integrating 'engagement experience' and tactics that beyond the reliance on

statistics, in line with students' own recommendations (Sariyatun et al., 2021; Wahyuningsih et al., 2023). Therefore, the utilisation of digital content aids pupils in the learning process.

Increasing motivation and learning outcomes using the video media model reflects that in learning, instructors should possess the ability to cultivate a more congenial educational environment for pupils. Learning is not only oriented to students' cognitive goals (learning outcomes), but is able to foster experiences for students (experience). This principle is in line with the motivational theory by Maslow.

The result of this study also show that students were easier to access video to be learned individually. They thought that by watching explanations in video made by their lecturers could provide deeper insights into their learning experience. This is supported by a study that by using learning video, it can make a learning more curious (Ilyas et al., 2023). Moreover, the learning will be enjoyable.

Studies on the advancement of video learning media models have elucidated the crucial role of lecturers is in growing, increasing student motivation and learning outcomes. The video can be also uploaded in YouTube as learning video (Sari et al., 2020). However, existing studies are more oriented towards improving student learning outcomes and do not analyze the long-term implications of factors that influence learning outcomes such as learning motivation. This study shows seriously the importance of fostering student motivation for learning rather than learning outcomes.

The study's findings elucidated that designing learning media was needed as a means of creating a pleasant learning atmosphere. Teachers should have high creative power in creating a conducive student learning atmosphere in order to increase student motivation and learning outcomes.

## CONCLUSION

Finally, it was concluded that the development of video based digital content learning had met the valid, practical and effective criteria with good categories. Thus, the video-based instructional approach can be employed to enhance students' motivation and academic achievements in learning to write and can overcome problems both motivation and achievement of learning outcomes. Learning media on many subjects can be built upon the foundation of this development's findings. In

line with that, further research is needed that involves a wider range of subjects and materials by accommodating the experiences and problems faced by students. The implementation of this approach in developing learning materials is regarded to have the potential to address a wider range of issues and challenges.

## ACKNOWLEDGEMENT

Researchers would like to thank LPPM-PMP Universitas Tidar for providing DIPA funding. Researchers also thank to the students who have given their time so that this research can be done well.

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