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Development of Active and Fun Learning-Based Educational Videos to Enhance Communication Skills and Students' Independence Learning

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Abstract: This study aims to develop and test the effectiveness of educational videos based on *Active and Fun Learning* in improving students' communication skills and learning independence. The problem behind this study is the low level of student interaction and motivation in conventional learning processes. This study used a research and development (R&D) method using a development model developed by Thiagarajan (*4D*: Define, Design, Develop, Disseminate). 32 eighth-grade students at SMPN 11 Jember as the research subjects. Data were collected through expert validation, student response questionnaires, and communication skills tests. The instruments were processed using quantitative descriptive methods. The results of the media expert validation showed an average of 94.67% (very feasible category), while the material expert validation showed a result of 93.33% (very feasible category). The effectiveness test results showed a significant increase in students' communication skills with an average *N-gain* value of 0.71 (high category). In addition, the questionnaire results showed an increase in learning independence with the majority of students in the high category. It can be concluded that *Active and Fun Learning*-based educational videos are effective as innovative learning media to improve the quality of learning, especially in the aspects of communication and student learning independence.

Keywords: Active and fun learning; Communication skills; Educational video; Media development; Students' independence.

Introduction

Development of digital technology has changed the face of education globally over the past decade. Information and communication technology (ICT) enables broader access to learning resources, "anytime-anywhere" content delivery, and new adaptive and personalized learning models. International organizations emphasize that digital transformation in the education sector is no longer just about adding digital devices or content but also about changing pedagogical practices, learning management, and policies to ensure the quality and equity of educational services (UNESCO, 2023). The integration of technology in the learning process has brought major changes to current learning methods. The emergence of Learning Management System (LMS), mobile learning applications, artificial intelligence, as well as technologies that use virtual reality and augment reality provide vast opportunities to improve the quality of learning (Bond et al., 2021). It can also provide new opportunities to improve student engagement, communication skills, and their ability to learn independently (Berlian, 2021). The integration of technology in the teaching and learning process is no longer just an option, but an urgent need to meet the demands of 21st century skills, which include critical thinking, collaboration, communication, creativity, culture, and connectivity (Nuraydah, Hariani, & Widjiastuti, 2023). Technology not only acts as a tool, but

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also as a driver of transformation in learning approaches, strategies and models that are more responsive, flexible and student-centered (Zawacki-Richter et al., 2019). Thus, equipping students with technological skills has become a necessity in facing the 21st century era.

Educational video is one of the media that is quite interesting to collaborate with learning. In this context, educational video media is one of the most widely used solutions to deliver teaching materials with more interesting, efficient and accessible. This media can convey information by combining audio, visual, and writing which is cognitively considered to increase students' focus, understanding, and memory of learning materials (Mayer, 2020). In addition, visual media can also improve students' communication skills (Sinambela et al., 2024). Furthermore, providing educational videos in the form of videos is one approach to convey information and messages that are easy to understand (Ari Nugroho et al., 2021). It can also stimulate the senses of students to get information. In addition, (Fakhriyah in Nur et al. 2025) stated that *active and fun* learning is also effective in increasing student learning motivation, especially in the aspects of creativity, initiative, confidence, and understanding of the material. This is also confirmed by (Idawati et al., 2022), that active and fun learning is an optimal strategy because students must be more courageous to ask questions, express opinions, and not be afraid of being wrong or embarrassed to be laughed at.

However, in learning practices, especially at the junior high school level, many still rely on conventional lecture-based methods, with minimal use of interactive media. In addition, the limitations of conventional learning media often make the learning process feel monotonous and do not involve students actively. So that it can have an impact on low motivation, participation, and development of student skills, especially communication and learning independence (Irsan & Agus, 2024). The teacher-centered learning model, where all learning activities are centered on the teacher, can cause students to become bored in class (Pt Diah et al., 2020). Therefore, the development of active and fun learning-based videos is a solution to create a dynamic, collaborative, and fun learning experience. In addition, active learning, which emphasizes the active role of students, aims to develop critical thinking, problem solving, metacognition, communication, collaboration, innovation, creative thinking, and information literacy (Sri Andini, Herianto, & Sumardi, 2024). Penelitian ini berfokus pada pelajaran Bahasa Inggris khususnya pada materi descriptive text.

Method

This research is a type of research and development (RnD). The development research method is a systematic approach to producing new products or improving existing products through a series of planned and structured stages (Anggraini et al., 2024). The development model used in this study is the 4-D model suggested by (Thiagarajan, Semmel, & Semmel, 1974). Thiagarajan's 4-D research and development model, consisting of four main stages namely Define, Design, Develop, and Disseminate, offers a comprehensive framework for the development of quality educational products (Permana, Raspati, Dwi Pertiwi, & Sabrina, 2024). This model is a concept of product development, which is suitable for research and development of teaching materials, namely educational videos. The subjects of this research were VIII grade students of SMPN 11 Jember. This development research was carried out through four stages of 4-D, such as the following procedures is outlined in Figure 1.

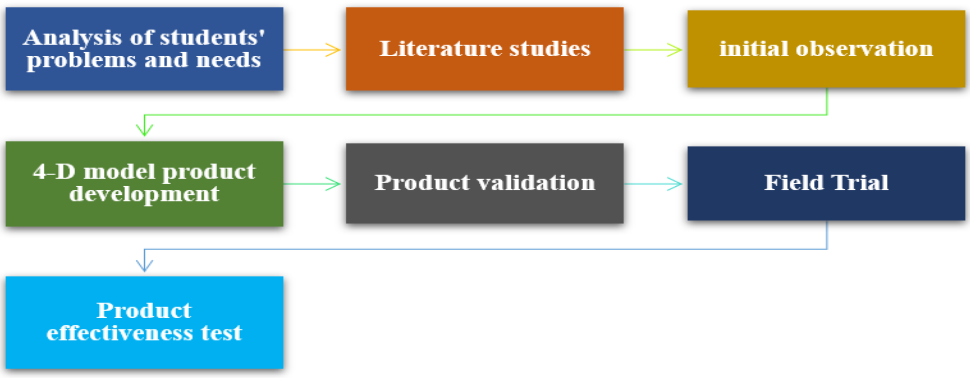

Figure 1. Research and Development Procedures

In the development procedure, several stages were carried out. First, *Define* is analyzing the gaps that occur in the research. The steps taken in this *define* are: 1) Validating the gaps in the research, 2) Determine the

instructional objectives of the research, 3) Confirm students to see the gaps directly, and 4) Identify the resources needed (Thiagarajan et al., 1974).

At the *define* stage, namely validating the research gap that has been described in the background of the research including also conducting classroom observations. Furthermore, determining the instructional objectives of this development research. The following table explains the instructional objectives of this research. Next, identify the resources needed for research.

Second, *Design*, which verifies performance and tests according to the development method. In its implementation, according to (Thiagarajan et al., 1974) The *design* stage has several parts, namely: 1) Perform inventory tasks, 2) Formulate the objectives of the development, and 3) Formulate a testing strategy. The Design step is carried out by designing and making educational videos for the active and fun learning model. At this stage, the preparation of educational video characteristics and product development instruments (teaching material syllabus, *pre-test* questions, *post-test* questions, and questionnaires for communication skills and independence instruments) are carried out.

The third stage of *Develop*, which is to produce and validate the needs of resources. The following describes several stages of *develop*, namely: 1) Generating content, 2) Select or develop supporting media, and 3) Develop guidelines for students (Thiagarajan et al., 1974). Product draft development is carried out by implementing educational videos and instruments that have been validated by experts. The purpose of the development stage was to produce a revised draft of the educational video based on input and expert appraisal and based on data obtained through field trials. The expert appraisal includes content validity, which consists of the *content* aspect of the educational video (whether it is in accordance with the subject matter and objectives to be measured), and the language aspect (whether it is in accordance with the guidelines for good and correct Indonesian and English). Field trials (developmental testing), carried out to obtain direct input from the field on the Education video that has been prepared, in this case the researcher conducted a non-test trial in a different class with a total of 10 students.

The fourth stage of *Disseminate*, preparing the learning environment and involving students in testing the product. The stages of *Disseminate*, among others: preparing teachers and students for development products, by conducting field trials to implement educational video media products that have been developed on a wider scale, namely in other classes at the same level, and to see the effect of the results of product implementation on students.

This research was conducted at SMPN 11 Jember with a research participants of this research are students of VIII D and VIII G students in the 2024/2025 academic year. 32 students became the sample in this study which was selected based on the compatibility of the problem with the solution offered in this study.

After completing all stages of data collection, research data analysis was conducted. Data analysis in this research aims to evaluate the effectiveness, validity, and practicality of the products developed. In this study, two types of data which are quantitative and qualitative. Quantitative data analysis is the process of analyzing information obtained from sources uses numbers and percentages to provide a systematic approach for processing data. Qualitative data analysis is the process of analyzing information obtained from sources like critics, suggestion, and questionnaire as described form. This type of data is turned into a more organized and structured form.

Result and Discussion

Development of Education Video Based Active and Fun Learning

The development product of educational videos based on active and fun learning, the researchers used the 4-D model development so that it can be an alternative solution to the problem of English learning applied to class VIII at the Junior High School level. This development model consists of four stages, namely *define, design, develop, and disseminate*.

First, the *define* stage. At this stage, researchers analyze and explore real problems in the field, analyze student needs, and determine the direction and purpose of the product to be developed. In the step of analyzing student needs, researchers identified that grade VIII students at SMPN 11 Jember still depended on the lecture method and conventional media. Furthermore, researchers confirmed the differences between conventional methods and the demands of learning in the 21st century and made direct observations in class VIII to ensure the need for more interactive media. After making observations, the researcher set the goal that students must have the ability to communicate and be independent in learning. In addition, the researcher also determined technical needs such as video devices, validation tools, and instruments that would be used in the research.

Second, is *design*. At this stage, researchers began to develop an educational video framework that would be used as learning media, as well as formulating testing strategies in the form of teaching modules. In this advanced stage, the design of the learning media is outlined in the form of a *story board* containing scripts, selection of media assets, and audio that will be

integrated in the form of videos. All of these design elements are designed to ensure alignment with established learning objectives, audience characteristics, and context of use (Elfiranur & Hariyani, 2025) This also serves as a visual and narrative guide for production of instructional videos (Sukirman & Setiawan, 2022) In this study, researchers used the Canva application as a medium for creating educational videos. The following is the educational video story board (Table 1).

In addition to educational videos, teaching modules also have an important role in the development of educational videos because they function as systematic guides that ensure compatibility between learning objectives, materials, delivery strategies, and evaluation. Essentially, teaching modules are complete learning units designed to achieve one or more specific learning objectives (Zulaiha & Kusuma,2020). Teaching modules are a fundamental element for teachers and become the main guideline in a learning process (Rahmatika et al., 2024). Thus, the teaching module acts as an instrument that bridges between digital content and pedagogical practices in the classroom so that it can run optimally in accordance with the predetermined learning objectives.

Table 1. Story board of education video development

Visual	Audio/ Naration
Teacher greeting students' animation Opening (10s)	Hi guys! Welcome back to our learning journey! Hari ini kita akan belajar tentang sesuatu yang super fun…
Confused children animation Mention the material to be studied (3s)	Ada yang tahu materinya? Yap, yaitu Descriptive Text! Descriptive text itu apa sih? *(Encouraging students to guess the material that will be studied)*
Animation of a teacher asking a question Leading question (1) (15s)	Tapi sebelum mulai, Bu Farah mau tanya dulu nih… Siapa di sini yang punya hewan peliharaan? Atau mungkin pernah ke tempat yang indah banget? *(Answer the leading question)*
A boy thinking animation Leading question (2) (16,5s)	Oke, coba bayangin kalian mau cerita tentang itu ke teman… kalian akan ngomong apa duluan? Warnanya? Bentuknya? Atau suasananya? *(Encourage students to think about that they would do if they were to describe something)*
Shows a text containing a general description of descriptive text Motivation and Purpose (53s)	- Nah… di situlah Descriptive Text jadi penting! In Descriptive Text, we tell details. Mulai dari warna, ukuran, bentuk, sampai suasana . Supaya pendengar atau pembaca bisa 'melihat' dengan pikiran mereka. - So, siap-siap ya! In this video, kita akan belajar: Apa itu Descriptive Text, Struktur dan ciri-cirinya, Tips bikin deskripsi yang menarik dan mudah dipahami. - Dan pastinya… akan ada fun challenge di akhir video biar kalian langsung bisa praktek! Alright, let's start our adventure in the world of Descriptive Text… let's go!
Shows slides containing the main material of descriptive text Main material (60s)	Explaining the meaning of descriptive text, the purpose, generic structures, and language features *(Students pay attention carefully)*
Shows a picture of cat and descriptive paragraph Interactive exercise (180s)	- Mentioning adjective commonly used in descriptive text *(Asked students to mentions adjectives which mostly used in descriptive text)* - Give an example of descriptive paragraph, then identify the structures of the text *(Asked students to understand the text and identify the text structure used)*
Shows QR containing pictures to be described Mini games (60s)	Feel free to scan the barcode, then make the mind map and also the paragraph of the picture you got. *(Asked the students to scan the QR code, then create a mind mapping and also the text of descriptive)*

Table 2. The role of teaching modules in the development stage of video education

Development steps	The roles of teaching module	Benefits of educational video
Define and Design	Outline learning objectives, subject matter, strategies, and assessments.	As a guide to develop the story board and video script to match the learning outcomes.
Development	Serves as a reference in script writing, selection of examples, illustrations, and learning activities.	Ensure that the video content is accurate, structured, and in line with students' needs.
Validation	Used by media and material experts to assess the suitability of content and learning strategies.	Facilitates feasibility evaluation.
Disseminate	Guides teachers in integrating videos into learning (steps, discussion, and reflection)	Helps teachers and students use videos not only as a spectacle, but as part of a complete learning activity.

Third, *develop* or also known as the product development stage. This stage is a complex stage because it includes several stages in the development of educational video products. This development stage focuses on actualizing the design into a final and fully functional product, involving the production process of pre-planned materials and media, as well as validation by experts to ensure relevance, ease of use, and suitability of competencies with teaching materials. This is in line with the opinion of Akker et al., (2013) who emphasize that development research must produce valid, practical, and effective products.

At this stage, the framework that has been prepared previously is realized in the form of ready-to-use products. This whole series of development aims to create learning media that are not only valid in substance, but also easy to use and efficient in improving understanding. As well as the ability of students in accordance with predetermined targets. The following are the results of the educational video that has been developed:

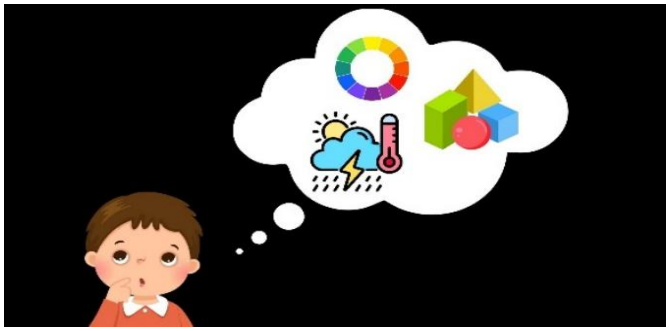

Figure 2. Display of educational video development results (opening)

Figure 3. Display of educational video development results (main material)

At this stage, researchers also validated the media and material experts, and revised the product based on expert input. Validation is carried out to determine and ensure that the media developed can work effectively. The following are the results of media and material validation which have been calculated using the formula 1.

$$Validity = \frac{total\ answer\ score}{Maximal\ score} \text{ x } 100\% \quad (1)$$

Table 3. Media expert validation result

Aspect	Score
Cover Design	24
Content design	47
Score acquisition	71
Percentage	94.67%
Category	Very Good

Table 4. Material expert validation result

Aspect	Score
Suitability of learning media with Competency Outcomes	18
Suitability of student activity steps with material on learning media	15
Suitability of material summary with learning media and Education Video	9
Score acquisition	42
Percentage	93.33%
Category	Very Good

Based on the assessment results in tables 3 and 4 above, it shows that the educational video media and materials to be delivered based on active and fun learning are qualified with a percentage of 94.6% for validation from media experts and 93.33% for validation from material experts. Although the validation results showed a very good category, some improvements were made by researchers according to suggestions from validators such as adding voice over to the opening video to make it seem more interactive and not giving too much time for the lighter game before delivering the core material. These findings support Branch (2009) opinion that learning products need to undergo a validation process first so that the material presented is appropriate and academically accountable. Fourth, disseminate. This stage is the implementation of the product that has been developed. Educational videos based on active and fun learning are implemented in class VIII D with a learning process adapted to the independent curriculum.

The Level of Effectiveness of Educational Video Based on Active and Fun Learning to Enhance Students' Communications' skills and independence

To measure the effectiveness of students' communication skills, pre-test and post-test were conducted in the form of reading dialog text and reading description text. The results of the pre-test and post-test are described in Table 4.

Table 4. Students' *Pre-test* dan *Post-test* results

Description	Pretest	Posttest
Average	57.97	88.28
Highest Score	70	100
Lowest Score	45	65
Number of Students	32	

Based on the average results of the *pre-test* and *post-test* in the table above, there is a significant comparison from the *pre-test* value which was originally 57.97 increased to 88.28 in the *post-test* results. The data above can be concluded that the development product is effective in improving students' communication skills, evidenced by the significance of the difference between before using educational videos and after using educational videos on descriptive text material. This is corroborated by research conducted by Darma Wisada et al., (2019) that class X students majoring in Financial Accounting experienced an increase in student character after using educational videos. In addition, educational videos are also effectively applied in learning and can improve students' mathematical literacy (Shafa & Yunianta, 2022). After obtaining the students' pre-test and post-test scores, the scores that have been obtained are analyzed again using the N-Gain formula to determine the increase in students' abilities:

$$< g >= \frac{post\ test\ score - pre\ test\ score}{maximal\ score - pre\ test\ score} \quad (2)$$

Description:
$< g >$ = N-gain

After doing through calculations and analysis using the N-Gain formula, the product is declared to have improved if it meets the following criteria:

Table 5. N-Gain value criteria

Gain (g)	Category
≥ 0.70	High
0.30 – 0.69	Medium
≤ 0.30	Low

Adopted from Hake (1998)

Table 6. N-Gain test results

Aspect	Pre-Test Average	Post-Test Average	N-Gain	Category
VIII grade	57.97	88.28	0.718	High

Based on the results of the *normalized gain* (N-Gain) calculation, an average of 0.71 was obtained, which is classified as a high category. Meanwhile, to measure the effectiveness of educational videos on students' communication skills, it is proven by a paired T-test analysis. The following are the results of the paired T-test:

Table 7. Paired T-test results

Data pair	Mean Pre-Test	Mean Post-Test	Mean Difference	t-count	Sig. (2-tailed)
Pre-Test – Post Test	58.98	69.42	10.53	11.566	0.000*

Based on table 7, the average student score is 58.89 while the average post-test is 69.42 with a difference of 10.53. The results of this paired t-test show a t-count value of 11.566 with a significance (p) of 0.000 <0.05, so Ho is rejected and Ha is accepted. Thus, the use of the developed educational video is proven effective in improving students' communication skills. This significant increase indicates that the educational video based on *active and fun learning* is able to provide a more interactive, interesting learning experience and stimulate students' active involvement. This is in line with the findings(Arsyad (2016); Hasanah Lubis et al., 2023) that learning media can help students in stimulating students' thoughts, feelings, and interests so that communication and the learning process become more effective and efficient. Students' learning independence using a questionnaire containing 20 questions with the following indicators:

Table 8. Indicators of independence questionnaire questions

Variable	Aspects	Indicators	Item
Learning Independence	Free to take responsibility	Able to make own decisions	1,10, 19
		Not delaying time in doing assignments	3,20
	Tenacious or Progressive	Does not give up easily in facing problems	2,4,12,16,18
	Initiative or Creative	Likes new things	13
		Likes high creativity	8
	Self-Control	Able to think before acting	9,15,14
	Self-esteem	Believe in one's own ability	5,6,7,11,17

Adopted from Made Rusmini (2023)

To determine students' independence in learning using a Likert scale of 1-5. There are 32 students who participated in giving assessments in this evaluation. The maximum score in this questionnaire is 100. After

that, it is categorized based on the percentage of Very high (≥ 81%), high (61%-80%), medium (41-60%), and so on. After the data was collected, there were 13 students who scored very high with a percentage of 41%, 8 students scored in the high category with a percentage of 25%, 9 students scored in the medium category with a percentage of 28%, and 3% percentage for students who scored low. Based on the calculation of the independence questionnaire, it can be concluded that most respondents have independence in learning in the high category. This indicates that students already have the ability to organize, control, and motivate themselves in learning. According to (Zimmerman, 2002), learning independence includes the ability to determine goals, choose how to learn, monitor progress, and conduct self-assessment independently. Thus, the ability to learn independently effectively is the main asset for students to achieve academic achievement. The increase in students' learning independence is also influenced by the use of learning videos based on active and fun learning. This finding is in line with research (Yuliansih, Arafat, & Wahidy, 2021) that the use of learning media has a role in improving learning outcomes and has a significant impact on student interest. Setiawan et al., (2025) that the use of learning media has a role in improving learning outcomes and has a significant impact on student interest.

Conclusion

The results of this study show that educational videos can improve the communication skills and independence of students in class VIII D at SMPN 11 Jember through the use of educational videos based on *active and fun learning*. The findings of this research show that strong expert validity and positive student reactions. In addition, the use of learning media in the form of educational videos can also improve understanding of the material and the development of students' learning independence.

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Main author and article researcher, N.M; collecting information, N.M; making instruments to measure needs and responses, N.M; making validation assessments of material experts and media experts, N.M; making evaluations, N.M. making and testing research products, N.M; data processing and writing the initial article, S.M.A. research and writing the second article, I.W.WA & H validated the instrument and initial product design before submitting it to the media expert and material expert validators, I.W.W.A & H; supervisor who directed and guided the first author, I.W.W.A & H.

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The authors declare no conflicts of interest

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