



## Elevating Learning Independence: Contextual Teaching and Learning Through Media Development Video Tutorials

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### Abstrak

Penelitian ini bertujuan untuk menentukan validitas video tutorial berbasis Pengajaran dan Pembelajaran Kontekstual untuk pembelajaran mandiri. Untuk mengetahui praktikalitas video tutorial berbasis Pengajaran dan Pembelajaran Kontekstual untuk pembelajaran mandiri. Untuk mengetahui efektivitas video tutorial berbasis Pengajaran dan Pembelajaran Kontekstual untuk pembelajaran mandiri dilihat dari respons siswa. Jenis penelitian yang digunakan dalam penelitian ini adalah penelitian dan pengembangan (Research and Development). Model pengembangan yang digunakan dalam penelitian ini adalah model pengembangan menurut Isman pada tahun 2011 yang terdiri dari lima tahap, yaitu input, proses, output, umpan balik, dan pembelajaran. Subjek dalam penelitian ini adalah siswa kelas VIII SMP Negeri 4 Sungai Penuh pada semester ganjil tahun akademik 2021/2022. Uji lapangan dilakukan di satu kelas, yaitu kelas VIII D. Hasil penelitian menunjukkan bahwa validitas media adalah 1.00 dan validitas materi adalah 1.00. Berdasarkan hasil analisis praktikalitas, media tutorial video berbasis Pengajaran dan Pembelajaran Kontekstual untuk pembelajaran mandiri dikatakan praktis dengan hasil praktikalitas media tutorial video sebesar 10.75 dengan persentase 83% dalam kategori praktis. Efektivitas media tutorial video yang dikembangkan dikatakan efektif untuk mengamati kemandirian belajar siswa. Hal ini dapat dilihat dari respons siswa terhadap pembelajaran matematika menggunakan media tutorial video berbasis Pengajaran dan Pembelajaran Kontekstual untuk pembelajaran mandiri memenuhi kriteria "efektif" dengan nilai persentase 83% sehingga dapat dikategorikan sebagai respons positif atau dapat dikatakan mandiri.

### Abstract

This study aims to determine the validity of video tutorials based on Contextual Teaching and Learning for independent learning. To know the practicality of video tutorials based on Contextual Teaching and Learning for independent learning. To find out the effectiveness of video tutorials based on Contextual Teaching and Learning for independent learning seen from the responses of students. The type of research used in this research is research and development (Research and Development). The development model used in this research is the development model according to Isman in 2011 which consists of five stages, namely input, process, output, feedback and learning. The subjects in this study were class VIII students of SMP Negeri 4 Sungai Full in the odd semester of the 2021/2022 academic year. Field trials were carried out in one class, namely class VIII D. The results showed that the validity of the media was 1.00 and the validity of the material was 1.00. Based on the results of the practicality analysis, video tutorial media based on Contextual Teaching and Learning for independent learning is said to be practical with a practical result of video tutorial media of 10.75 with a percentage of 83% in the practical category. The effectiveness of the video tutorial media developed is said to be effective for observing student learning independence. It can be seen from the students' responses to learning mathematics using video tutorial media based on Contextual Teaching and Learning for learning independence fulfilling the "effective" criteria with a percentage value of 83% so that it can be categorized in positive response or can be said independently.

### INTRODUCTION

Learning media can be audio media, visual media, or audio visual media. Video is an audio visual medium effective and efficient use of the learning process (Gusmania & Wulandari, 2018). The advantages of learning by using media video tutorial that is video media presents the object of learning concrete so good in adding to the learning experience of learners, can increase interest and motivation to learn with power special attraction, students can be learn the

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teaching material repeatedly, and provide ease in distributing it (Purwanti, 2015). One of them is teachers can use video tutorial media. In addition that, learning by using video tutorial media can create a fun learning atmosphere such as adding other so on. With the creation of various variations and the media so that it can change the mindset of learners who consider abstract mathematics is a fun lesson for learners.

In the realm of mathematics education, the traditional methods of teaching have long been predominant, often resulting in limited stimulation of students' learning independence. Hiebert and Grouws (2015) highlighted the prevalence of traditionalism in mathematics education, leading to a lack of emphasis on fostering students' ability to learn independently. Furthermore, Kilpatrick, Swafford, and Findell (2001) noted that mathematics learning is often disconnected from the everyday contexts of students' lives. This raises concerns about the effectiveness of current instructional methods in promoting meaningful learning experiences for students.

The National Council of Teachers of Mathematics (NCTM) has consistently advocated for a shift towards contextualized mathematics education (NCTM, 2000). The integration of real-world contexts into mathematics instruction is seen as crucial for engaging students and helping them connect mathematical concepts to their daily lives (Moyer-Packenham et al., 2016). Despite these recommendations, there remains a gap in the literature regarding the specific impact of media development, particularly video tutorials, on enhancing students' learning independence in the context of secondary education.

The present study aims to address this gap by investigating the potential of video tutorials as a tool for elevating learning independence in mathematics education. With the increasing prevalence of digital media, it is essential to explore innovative approaches that leverage technology to enhance the learning experience. Video tutorials have gained popularity as a means of delivering instructional content due to their visual and auditory appeal, allowing students to engage with complex mathematical concepts in a more accessible manner.

The significance of this research is underscored by the need to adapt teaching methods to the evolving educational landscape. The integration of contextual teaching and learning through media development video tutorials represents a contemporary approach to mathematics education that aligns with the needs and preferences of the current generation of students. By addressing this issue, the study aims to contribute valuable insights into the effectiveness of such interventions in promoting learning independence and fostering a deeper understanding of mathematical concepts.

The literature on mathematics education emphasizes the importance of contextualization in promoting meaningful learning experiences. According to Hiebert and Grouws (2015), traditional teaching methods often fall short in providing students with opportunities to apply mathematical concepts to real-world situations. This limitation can hinder the development of students' problem-solving skills and critical thinking abilities, essential components of learning independence.

Kilpatrick, Swafford, and Findell (2001) further elaborate on the disconnect between mathematics education and the real-world, emphasizing the need for a more integrated and contextualized approach. The authors argue that the compartmentalization of mathematical concepts contributes to students' perception of mathematics as an abstract and irrelevant subject. This perception can negatively impact students' motivation and engagement, hindering their ability to take ownership of their learning.

The NCTM's Principles and Standards for School Mathematics (2000) advocate for a shift towards a more comprehensive and interconnected approach to mathematics education. The document emphasizes the importance of helping students make connections between mathematical concepts and their everyday lives. Contextual teaching and learning are identified as key strategies to achieve this goal, aligning with the overarching theme of the present study.

The use of media in education has been a subject of increasing interest and exploration. Moyer-Packenham et al. (2016) conducted a review of interventions aimed at increasing mathematics problem-solving and reasoning skills. While their focus was not specifically on video tutorials, the study highlighted the potential of various interventions, including digital

media, in enhancing students' mathematical abilities. This underscores the relevance of exploring the impact of video tutorials in the context of elevating learning independence in mathematics education.

The integration of video tutorials into mathematics education aligns with the broader trend of incorporating technology into the classroom. As technology becomes more pervasive in society, educators are increasingly leveraging digital tools to enhance teaching and learning experiences. Video tutorials, in particular, offer a dynamic and visually engaging medium for delivering instructional content. Research by Kay and LeSage (2009) supports the idea that multimedia, including video, can be an effective tool for improving students' understanding of mathematical concepts.

However, despite the potential benefits, the specific impact of video tutorials on learning independence in the context of mathematics education remains an underexplored area. This study seeks to fill this gap by examining how the development and integration of video tutorials can contribute to elevating students' learning independence in the field of mathematics.

In the development of media video tutorial researchers use Contextual Teaching and Learning. Contextual Approach Teaching and Learning is very suitable to be applied in the process learning because this approach emphasizes student involvement in the process of learning and can relate to it in everyday life (Sanjaya,2005). Through CTL approach student are expected to be able to understand the material well and form a logical thinking in Apply Mathematics in everyday life. In addition in the learning process the teacher also need the role of learners in the directing and guiding themselves to be active during the learning process called independent learn. Students who are interested in learning with the CTL approach (Contextual Teaching and Learning) has a positive relationship with independence of learning. For example, have their own desire to complete the task, have a high curiosity towards something new, not dependent on teachers, and able to evaluate the results learn it yourself.

According to Zimmerman independence of learning is the ability to become an active person in knowledge, motivation, and behavior in the learning process USA Abd. Mukhid, 2008 (Dewi, 2020). Through learning that implements the process of learning independence student are expected to be able to control themselves in the learning process done without a teacher at the time of the learning process take place so that learning is still running effectively and efficient. Thus the learning process can run with whether you are using e-learning or not the teacher's presence. One way to develop learning independence learners are using learning media. Learning media is a tool or intermediary that can it is used to facilitate the learning process. With media learning the learning process between teachers and students can run effectively and efficient (Restu Lusiana, 2016).

Independence of learning is very important for student, because the attitude independence has a purpose to direct itself towards a more positive and can support success in learning poses. Independent learning can train learners in taking each action so that learners have discipline in the process learn, be responsible and have the ability to learn on a whim themselves (Kusnadi, 2018).

From the description above, we can conclude that the process learning using CTL (Contextual Teaching and Learning) has a positive relationship to the independence of learning students because CTL (Contextual Teaching and Learning) makes students are interested in the material provided by the teacher. In conclusion, the proposed study, "Elevating Learning Independence: Contextual Teaching and Learning Through Media Development Video Tutorials," addresses a critical gap in the current literature on mathematics education. Traditional teaching methods often fall short in fostering students' learning independence, and there is a need for innovative approaches that align with the principles of contextual teaching and learning. The integration of video tutorials as a medium for delivering instructional content holds promise in enhancing students' engagement and understanding of mathematical concepts within real-world contexts. By conducting this research, we aim to contribute valuable insights that can inform educational practices and contribute to the ongoing evolution of mathematics instruction in the digital age.

## **METHOD**

The type of research employed in this study is Research and Development (R&D). Research and Development is a systematic process of developing educational products through a series of research activities, employing various methods in a cyclical fashion that progresses through different stages. This method is commonly used to create a specific product and evaluate its effectiveness. In the context of this study, the aim is to produce a product in the form of a video tutorial based on contextual teaching and learning, with a focus on enhancing learning independence. The research design is tailored to achieve this goal.

The development model utilized in this study follows Isman's model from 2011, which comprises five distinct stages: Input, Process, Output, Feedback, and Learning. This model provides a structured framework for the systematic development of educational materials. In the context of this research, the development process focuses on creating a video tutorial based on contextual teaching and learning, specifically addressing the SPLDV (Sumbu Pemusatan Lingkaran dan Volume) material in mathematics. Each stage of the model contributes to the overall process of creating, validating, and implementing the educational product.

- 1) **Input:** In the first stage, the initial input involves identifying the relevant content, in this case, the SPLDV material in mathematics. This stage sets the foundation for the subsequent development process.
- 2) **Process:** The process stage involves the actual development of the educational product, which, in this study, is the video tutorial based on contextual teaching and learning. This includes the design and creation of the material to be presented in the tutorial.
- 3) **Output:** The output stage pertains to the tangible result of the development process. In this context, it refers to the produced video tutorial. This stage is critical as it represents the culmination of efforts in creating the educational product.
- 4) **Feedback:** The feedback stage involves seeking input and evaluation from experts. The product, in this case, the video tutorial, is subjected to validation by experts in the field. Their feedback provides valuable insights for refining and improving the tutorial.
- 5) **Learning:** The learning stage involves the implementation of the developed product in an actual educational setting. In this study, the video tutorial is tested in a classroom setting, specifically in class VIII D at SSMN 4 Sungai Penuh. This stage serves to assess the practicality and effectiveness of the developed product in a real-world learning environment.

The data analysis techniques employed in this study are centered around the evaluation of the learning device design by validators. The analysis involves a systematic assessment of the educational product, particularly focusing on the validity and practicality of the video tutorial based on contextual teaching and learning. The stepwise evaluation process ensures that the final product meets the necessary standards and effectively contributes to the enhancement of learning independence in the context of mathematics education.

## **RESULT AND DISCUSSION**

### ***Results***

After the design of learning media and instruments is complete compiled and developed, the next step is the validation of experts validator before the product is applied to the learning stage (trial limited). This stage aims to produce learning media "valid" or "very valid" from experts/ validators. This is done so that get the ideal product and in accordance with the research design. If the product validation result are not valid, the validation will continue until you get a valid assessment.

All series of product evaluation performed by the validator competent in learning media and understand the making products based on contextual teaching and learning of independence of learning by using video tutorial media. Assessment this product, performed for approximately 2 weeks by experts validators. Validator will provide feedback or suggestion about product that have been developed. Input or suggestions from the validator will be used as

benchmarks in the revision product that are not in accordance with development plan, to obtain new product in accordance with development plan. The validator selected in the development of media learning in this study is as follows.

**Table 1.** List Of Learning Media Validator Names

Validator	Description
RD	Lecturer in Mathematics Education IAIN Kerinci
MO	Lecturer in Mathematics Education IAIN Kerinci
Y	Math Teacher Class VIII SMP Negeri 4 Sungai Penuh

The assessment phase of the validity of the video tutorial was carried out by 2 people validators consisting of material experts and media experts. As for the results assessment by the validator is the average level of validity of 1,00 belongs to the category “very valid”. Video validity assessment results tutorial by validator can be seen in table 4.2 or appendix 6 and 8.

**Table 2.** Validation Result of Media and Materials

No	Aspects of Validation	Index Validation	Category
1.	Media Validation	1	Very Valid
2.	Material Validation	1	Very Valid

In addition to the assessment of validity bby the validator/ lecturer, video tutorials are also assessed by a math teacher consisting of four aspects of content, language, presentation and display. The result of the assessment of practicality by teacher obtained an average 83% who fall into the category are very partical. Calculation results assessment of video tutorials by teachers can be seen in table 4.3 or close to 10.

**Table 3.** Results Of Media Practicality

No	Assessed Aspects	Average	%NRS	Category
1	Content Qualification	3,5	88%	Very Practical
2	Languages	3	75%	Practical
3	Servings	3,66667	92%	Very Practical
4	Views	3	75%	Partical
	Total	3,29167	83%	Very Practical

After assessing the validity and partiality of the media, the next video tutorials also assessed the effectiveness of the media to view independence of learning from the response of learners conducted on one class with a total of 27 students. As for the results assessment by students is the average the response rate of learners is 87% including the category of “very good”. The results of the response assessment of students can be seen in table 4.4 or close to 12.

**Tabel 4.** Results Of Respondent Education

No	VA	A	DS	DNT	NRS VA	NRS A	NRS DS	NRS DNT	Total NK	%NRS
1	4	14	8	1	16	42	16	1	75	69%
2	9	16	2	0	36	48	4	0	88	81%
3	11	16	0	0	44	48	0	0	92	85%
4	15	12	0	0	60	36	0	0	96	89%
5	8	19	0	0	32	57	0	0	89	82%
6	3	19	5	0	12	57	10	0	79	73%
7	7	17	3	0	28	51	6	0	85	79%

8	15	10	2	0	60	30	4	0	94	87%
9	14	13	0	0	56	39	0	0	95	88%
10	17	10	0	0	68	30	0	0	98	91%
11	14	13	0	0	56	39	0	0	95	88%
12	16	11	0	0	64	33	0	0	97	90%
13	8	19	0	0	32	57	0	0	89	82%
Average									90,15385	83%

In table 2, 3 dan 4 shows that the average level validity, practicality and response of students according to validator/ lecturer, teachers and learners resectively are 83%, 87% dan 90,15% the category video tutorials based on Contextual Teaching and Learning is used and can increase independence learning participants

## **Discussion**

### **Validity of Video Tutorial**

The validity of video tutorials is a crucial aspect in research and development, with a focus on the validity of both the media and the material presented. According to the data presented in Table 2, the average rating from expert validators indicates the validity of the media and material in the video tutorial. The validation process involves assessing whether the learning media meets specific criteria before being tested on learners. In this context, the media was evaluated by a mathematics lecture tadrís, and the results show an average validity index of 1.00, categorizing it as valid. This suggests that the video tutorial successfully meets the criteria for accuracy in selecting typeface, color, and font size, as well as ensuring precision in layout settings, image selection, sound, music illustrations, and language use in accordance with the rules of Indonesian grammar. Furthermore, the tutorial is described as easy to understand and communicative, essential qualities for effective learning experiences.

The validation process extends to the assessment of material aspects, which is also conducted by a mathematics lecture tadrís. The results of the material validation reveal an average validity index of 1.00, categorizing the material as valid. This conclusion indicates that the video tutorial adheres to the principle of accurate material presentation. The content aligns with basic competencies and achievement indicators, demonstrating a comprehensive coverage of the necessary educational material. Moreover, the video tutorial is recognized for presenting content according to contextual-based components of teaching and learning. The systematic arrangement of the material contributes to a cohesive and effective learning experience for the users.

These findings align with the broader literature on educational technology and multimedia learning. According to Mayer's Cognitive Theory of Multimedia Learning (2005), the effective design of multimedia materials, including videos, involves considerations such as coherence, signaling, and spatial contiguity. The positive validation results in terms of accuracy in layout settings, image selection, and language use suggest that the video tutorial aligns with these principles. Additionally, research by Clark and Mayer (2016) emphasizes the importance of aligning multimedia materials with instructional goals, which is reflected in the validation results indicating conformity to basic competencies and achievement indicators.

The overall validity of the video tutorial is a critical factor in ensuring its educational efficacy. The positive assessment from expert validators provides confidence in the accuracy and appropriateness of the tutorial's design and content. This aligns with the broader literature on the importance of multimedia learning in enhancing educational outcomes. For example, a meta-analysis by Van Merriënboer and Ayres (2005) highlights the positive impact of multimedia instruction on learning outcomes when designed effectively. The validity of the video tutorial, as demonstrated through expert validation, contributes to the growing body of evidence supporting the integration of multimedia tools in educational settings.

In conclusion, the research findings on the validity of video tutorials, encompassing both media and material aspects, provide a strong foundation for their effectiveness in educational contexts. The alignment with principles of multimedia learning and the positive evaluation by expert validators underscore the significance of these tutorials in enhancing the learning experience. The meticulous validation process ensures that the video tutorial meets not only the technical criteria such as typeface and layout but also the educational criteria, including adherence to competencies and achievement indicators. This research adds to the existing literature on multimedia learning and reinforces the importance of rigorous validation in the development of educational materials.

### **Practicality of Video Tutorial**

The evaluation of learning media is paramount in ensuring its effectiveness, and practicality is a key aspect in this assessment. In this study, the practicality of video tutorial content was evaluated based on four aspects: content, language, presentation, and display. These aspects were measured using a set of statements, and the average values and percentage scores were calculated to determine the overall practicality of the video tutorial.

Analyzing the data from the table, the feasibility of the content, represented by statements 1, 2, 3, and 4, achieved an average score of 3.5 with a percentage value of 88%, categorizing it as "very practical." This indicates that the content of the video tutorial is deemed highly practical by the evaluators. The linguistic aspect, encompassing statements 5 and 6, received an average score of 3 and a percentage value of 75%, categorizing it as "practical." While this aspect is considered practical, there might be areas for improvement in terms of language use. Moving on to the presentation aspect, consisting of statements 7, 8, and 9, the average score was 3.66667, with a percentage value of 92%, indicating that the presentation is highly practical. Finally, the display aspect, represented by statements 10, 11, 12, and 13, achieved an average score of 3, with a percentage value of 75%, categorizing it as "practical."

The overall practicality of the video tutorial, calculated by averaging the scores of the four aspects, resulted in a value of 3.29167, with a percentage value of 83%, categorizing it as "very practical." This comprehensive assessment reaffirms the high practicality of the video tutorial as a learning medium. The consistency of practicality across multiple aspects, particularly content and presentation, strengthens the credibility of the evaluation.

The practicality assessment is further supported by the responses from teachers, as indicated in Table 4.3. The data show that two categories received a "very good" rating, and two categories received a "good" rating from teachers, based on different aspects. Additionally, Table 4.5 highlights that teachers provided the highest total value of 43 points when assessing the practicality of the video tutorial. This positive response from teachers is a strong indicator of the practicality of the video tutorial as an effective learning medium.

To contextualize these findings, it is valuable to refer to existing literature on instructional design and multimedia learning. Clark and Mayer (2011) emphasize the importance of coherence and clarity in instructional materials, factors closely related to practicality. The positive evaluation of content and presentation aligns with these principles, suggesting that the video tutorial effectively conveys information in a clear and cohesive manner.

Furthermore, the practicality of the video tutorial, as indicated by the high percentage score of 83%, resonates with the work of Smith and Ragan (2005), who stress the significance of practicality in instructional design. They argue that practicality is crucial for the successful implementation of instructional materials in real-world educational settings. In this study, the practicality assessment, supported by teacher responses, reinforces the applicability and usability of the video tutorial in educational contexts.

In conclusion, the results of the practicality assessment indicate that the video tutorial is highly practical as a learning medium. The comprehensive evaluation of content, language, presentation, and display consistently categorizes the tutorial as "very practical." The positive responses from teachers further validate the practicality of the tutorial, emphasizing its suitability for effective learning experiences. This research contributes to the broader discourse

on multimedia learning and instructional design, highlighting the importance of practicality in the development of learning materials.

### **Student Response**

The study focuses on assessing student responses regarding media development in the context of contextual teaching and learning, particularly in relation to the promotion of learning independence through the use of video tutorial media. The evaluation of student responses was conducted through a questionnaire distributed to eighth-grade students (grade VIII D) during a limited trial period. The data presented in Table 4 illustrates the outcomes of this assessment, providing insights into how students perceive the impact of video tutorial media on their learning independence.

Analyzing the data from Table 4, it is evident that the responses from students, ranging from statement 1 to statement 13, yielded an average total rating of 90.2 points with a corresponding percentage of 83%. This indicates a positive overall response from students regarding the integration of video tutorial media in contextual teaching and learning to enhance learning independence. The high average rating suggests that students perceive the video tutorial as a valuable tool in fostering self-reliance in their learning process.

The categorization of responses in Chapter III as "positive" further reinforces the notion that students view the incorporation of video tutorial media in mathematics-based contextual teaching and learning as beneficial to their learning independence. The positive response aligns with the principles of contextual teaching and learning, which emphasizes making learning relevant to students' real-life experiences and promoting active engagement in the learning process.

This positive response can be further understood in the context of the literature on multimedia learning and instructional design. Mayer's Cognitive Theory of Multimedia Learning (2005) suggests that multimedia presentations, such as video tutorials, can enhance learning outcomes when designed in a way that aligns with cognitive processes. The positive response from students in this study implies that the video tutorial effectively supports their cognitive engagement and contributes to their understanding of mathematical concepts.

Moreover, the concept of learning independence is central to educational theories such as self-determination theory (Deci & Ryan, 2000). This theory posits that learners are motivated when they have a sense of autonomy, competence, and relatedness. The positive student responses in this study indicate that the use of video tutorial media within the contextual teaching and learning framework contributes to students' sense of autonomy, allowing them to take charge of their learning process.

The findings of this study also resonate with research on technology integration in education. According to Ertmer's (1999) model of teacher pedagogical beliefs and technology integration, successful technology integration occurs when teachers and students perceive technology as useful and relevant to the learning process. In the context of this study, students' positive responses suggest that they find video tutorial media to be a useful and relevant tool for their learning independence.

In conclusion, the student responses to the integration of video tutorial media in contextual teaching and learning, particularly in promoting learning independence, are overwhelmingly positive. The high average rating and the categorization of responses as "positive" indicate that students perceive the video tutorial as a valuable resource in enhancing their autonomy and self-reliance in the learning process. This aligns with educational theories emphasizing the importance of relevance, engagement, and autonomy in promoting effective learning experiences. The positive outcomes of this study contribute to the growing body of evidence supporting the use of multimedia tools, such as video tutorials, in educational settings.

### **CONCLUSION**

In conclusion, the research findings highlight the overall positive evaluation of video tutorial media based on contextual teaching and learning in fostering independent learning. The validity analysis indicates that the media is valid, supported by a perfect validity score of 1.00



for both media and material aspects. Furthermore, the practicality analysis underscores the practical effectiveness of the video tutorial, with a practicality score of 10.75 and a percentage of 83%, categorizing it as practical. The effectiveness of the video tutorial in promoting learning independence is affirmed by students' positive responses, meeting the criteria of "effective" with an 83% approval rate. This collective evidence suggests that the developed video tutorial media, within the contextual teaching and learning framework, not only meets rigorous validity and practicality standards but also effectively contributes to students' independent learning experiences in the context of mathematics education.

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