

# Content Analysis of Student Learning Videos for Teacher Professional Education Programs Based on Gagne's Learning Theory

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## Abstrak

Kurangnya kemampuan dalam menggunakan teknologi berdampak pada kegiatan pembelajaran yang kurang inovatif dan tidak mengikuti perkembangan zaman. Penelitian ini bertujuan untuk menganalisis konten video pembelajaran yang dibuat oleh mahasiswa Program Pendidikan Profesi Guru berdasarkan teori belajar Gagne. Metode penelitian yang digunakan adalah kualitatif deskriptif dengan pengumpulan data melalui analisis konten video pembelajaran oleh mahasiswa Program Pendidikan Profesi Guru yang mengajar pada jenjang sekolah dasar. Data dianalisis menggunakan metode analisis konten untuk mengidentifikasi penerapan sembilan langkah instruksional Gagne dalam video-video tersebut. Hasil analisis menunjukkan bahwa sebagian besar video berhasil mendapatkan perhatian siswa dan menyampaikan tujuan pembelajaran dengan jelas di awal video. Namun, terdapat kekurangan dalam merangsang recall terhadap pengetahuan sebelumnya, memberikan panduan belajar yang mendetail, memberikan umpan balik yang konsisten, dan melakukan penilaian akhir untuk mengukur pemahaman siswa. Hal ini menunjukkan perlunya pelatihan lebih lanjut dalam penerapan teori Gagne agar konten video pembelajaran lebih efektif. Kesimpulan dari penelitian ini adalah pentingnya integrasi teori belajar yang kuat dalam pembuatan materi pembelajaran. Dengan dukungan dan pelatihan yang tepat, mahasiswa Program Pendidikan Profesi Guru dapat meningkatkan kualitas dan efektivitas video pembelajaran mereka, sehingga memberikan manfaat yang lebih besar bagi proses pembelajaran siswa di masa depan.

**Kata Kunci:** Analisis Konten, Video Pembelajaran, Teori Belajar Gagne

## Abstract

Lack of ability in using technology has an impact on learning activities that are less innovative and do not keep up with the times. This research aims to analyze the content of learning videos created by students of the Teacher Professional Education Program based on Gagne's learning theory. The research method used is descriptive qualitative with data collection through content analysis of learning videos. Data were analyzed using content analysis methods to identify the implementation of Gagne's nine instructional steps in these videos. The analysis results show that most of the videos succeeded in getting students' attention and conveying the learning objectives clearly at the beginning of the video. However, there are shortcomings in stimulating recall of previous knowledge, providing detailed study guides, providing consistent feedback, and conducting final assessments to measure student understanding. This shows the need for further training in applying Gagne's theory so that learning video content is more effective. The conclusion of this research is the importance of integrating strong learning theories in creating learning materials. With the right support and training, Teacher Professional Education Program students can improve the quality and effectiveness of their learning videos, thereby providing greater benefits to students' future learning processes.

**Keywords:** Content Analysis, Learning Videos, Gagne's Learning Theory

## 1. INTRODUCTION

Learning is an essential process in developing students' knowledge and skills (Prediger et al., 2023; Saidov et al., 2023). Learning activities involve various methods and

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media that aim to facilitate understanding and application of teaching material (Samad & Setyabudhi, 2023; Sofi-Karim et al., 2023). In the context of modern education, the role of technology is increasingly dominant in supporting this process, providing convenience and variety in the delivery of information (Alam & Mohanty, 2023; Kovalenko & Hontarenko, 2023). Technology not only makes it easier to access information but also allows for more interactive and interesting learning. Therefore, the integration of technology in learning is an important step towards more effective and efficient education. One of the media that is increasingly popular in the world of education is learning videos (Panjaitan et al., 2023; Toleuzhan et al., 2023). Learning videos offer various advantages such as concept visualization, flexibility in time and place, and the ability to be repeated according to students' needs (Amedia et al., 2023; Leng & Atan, 2023). The use of learning videos has become an integral part of many educational programs, including the Teacher Professional Education Program (Ali et al., 2023; Widiyani et al., 2024). The advantage of learning videos is that they allow students to study independently and manage their own study time. Additionally, videos can be used to explain complex concepts in a way that is easier to understand through visualization.

Teacher Professional Education Program students, as prospective professional educators, are required to be able to produce quality learning video content. Good video content not only conveys material clearly, but must also be designed in such a way that it attracts and motivates students (Priantini, 2020; Zahwa & Syafi'i, 2022). The quality of video content created by Teacher Professional Education Program students will have a direct impact on the effectiveness of the teaching and learning process they manage in the future (Aminah et al., 2024; Noetel et al., 2021). Therefore, the ability to design effective learning videos is a very important competency for prospective teachers (Mesra et al., 2024; Mursalin et al., 2024). Developing these skills can also increase their confidence in using technology as a learning aid. Gagne's learning theory offers a useful framework for designing instructional videos (Aziz et al., 2023; Yusuf, 2023). Gagne put forward nine instructional steps that can improve the learning process, starting from getting students' attention to increasing retention and knowledge transfer (Anam, 2022; Sulaiman, 2024). By applying this theory, learning videos can be more structured and effective in helping students achieve learning goals (Kohzaki, 2024; Ningrum & Sutriyani, 2024). Implementing these steps can ensure that every important element of the learning process is covered in the video. In addition, a clear and systematic structure will help students organize and absorb information better.

However, there is a research gap regarding the extent to which learning video content created by Teacher Professional Education Program students is in accordance with Gagne's learning theory. Analysis of learning video content is important to evaluate the suitability and effectiveness of the video in supporting the teaching and learning process. Research regarding the suitability analysis of the learning process was previously carried out by (Susanti et al., 2021) with the results that science learning had been implemented well according to the Lesson Study stages. Research by (Asmara et al., 2024) concluded that the analyzed learning videos were in accordance with the Learning Implementation Plan designed by the teacher. Research examining the suitability of learning videos with Gagne's theory is still limited, so further studies are needed to close this gap and provide new insights in the field of education

This study has novelty in terms of in-depth analysis of the content of learning videos created by students of the Teacher Professional Education Program based on Gagne's learning theory. The novelty of this study lies in its focus on analyzing the application of Gagne's nine instructional steps in learning videos, which have not been widely discussed in the context of students of the Teacher Professional Education Program, especially at the elementary school level. This study is important to identify the advantages and disadvantages

in making learning videos by students of the Teacher Professional Education Program, as well as to provide recommendations for future improvements. This study has a high urgency considering the importance of the quality of learning video content in supporting the education process, especially for students of the Teacher Professional Education Program who will become educators in the future. This study is expected to provide deeper insight into areas that need to be improved in making learning videos, as well as provide recommendations for further training in the application of Gagne's theory. Ultimately, this study is expected to be able to encourage the development of the competence of students of the Teacher Professional Education Program in designing more effective and structured learning materials, so as to improve the quality of learning for students in the future. The purpose of this study is to analyze the suitability of learning video content with Gagne's learning theory and provide recommendations for students of the Teacher Professional Education Program in designing learning videos.

## **2. METHOD**

This research uses a descriptive qualitative approach, which aims to understand and describe phenomena in depth and detail (Jailani, 2023; Teguh et al., 2023). Descriptive qualitative research is very suitable for use when researchers want to reveal reality from the perspective of the subject being studied, in this case, learning videos made by students of the Teacher Professional Education Program (Tahir et al., 2023; Waruwu, 2023). Through this approach, researchers can explore various aspects of learning video content, including structure, content, and conformity with Gagne's learning theory, without reducing the complexity and nuance that exists. In descriptive qualitative research, data is collected through various methods such as observation, interviews, and document analysis. For this research, a detailed content analysis of instructional videos will be conducted, focusing on how each element in the video fits into Gagne's nine instructional steps. The results of this research will be presented in the form of a rich and in-depth description, providing a clear picture of the quality and effectiveness of learning videos created by students of the Teacher Professional Education Program. The data collection technique in this research aims to get an in-depth picture of the content of learning videos made by students of the Teacher Professional Education Program (Annisa et al., 2023; Nurani et al., 2022). What researchers did in collecting data was to carry out direct observations of learning videos to identify and analyze elements that correspond to Gagne's nine instructional steps.

The data analysis technique in this research will be carried out using a descriptive qualitative approach, which involves several systematic steps to identify, categorize and interpret data (Adiwijaya et al., 2024; Suprayitno et al., 2024). Data obtained from learning video analysis will be analyzed using the content analysis method. First, data will be coded to identify key themes related to Gagne's nine instructional steps. Next, these themes will be organized and interpreted to evaluate the suitability and effectiveness of the learning video content. The results of the analysis will be presented in the form of rich and detailed descriptions, providing in-depth insight into the quality and application of Gagne's theory in learning videos created by students of the Teacher Professional Education Program. The 9 steps of Gagne's learning theory are: Getting students' attention, Conveying learning goals to students, Stimulating previous memories, Delivering new material, Providing learning guidance, Encouraging learning practice, Providing feedback on learning performance, Assessing learning performance, Increasing retention and learning transfer. Learning video analysis will also use a 1-10 rating scale.

This research procedure began with the preparation stage, where the researcher collected samples of learning videos made by students of the Teacher Professional Education Program. After that, the researcher made initial observations of the video to obtain a general overview and determine analysis criteria based on Gagne's nine instructional steps. The next stage is data collection, which includes in-depth observation of the video content. After the data was collected, the researcher analyzed the data using the content analysis method, coding and categorizing the data according to relevant themes. The final stage is to present the findings comprehensively and provide recommendations for improving the quality of learning videos based on Gagne's learning theory.

### 3. RESULTS AND DISCUSSION

#### Results

After data collection, the next step is data processing which includes analysis of learning video content. This data processing process involves coding the data to identify the main themes related to Gagne's nine instructional steps, as well as categorizing the data according to predetermined criteria. The results of content analysis of learning videos show that most videos are successful in steps such as getting students' attention and presenting learning objectives clearly. However, some videos are less effective in facilitating student understanding and providing adequate feedback. The following is a table that summarizes the results of content analysis of learning videos based on the learning assessment scale and based on Gagne's nine instructional steps, which illustrates the level of implementation of each step in the videos analyzed, showed in [Table 1](#).

**Table 1.** Results of Analysis of Learning Videos for Teacher Professional Education Program Students Based on the Learning Assessment Scale

No	Gagne's Learning Theory Steps	Scoring scale			
		1-2 (Very less)	3-5 (Not enough)	6-8 (Good)	9-10 (Very well)
1	Get attention				✓
2	Convey learning objectives				✓
3	Provoke memories of previous material			✓	
4	Presenting content		✓		
5	Provide guidance		✓		
6	Drive performance			✓	
7	Provide feedback			✓	
8	Assess performance			✓	
9	Increase retention and transfer		✓		

The table above shows the results of video analysis of student learning from the Teacher Professional Education Program based on the learning assessment scale using the steps of Gagne's learning theory. In the getting attention step, a scale of 9-10 (Very Good) was obtained, indicating that the method used to attract students' attention was very effective. In the step of conveying learning objectives, a scale of 9-10 (Very Good) was obtained, indicating that the learning objectives were conveyed very clearly to students. In the step of provoking memories about previous material, a scale of 6-8 (Good) was obtained, which means that the teacher was quite good at connecting the material being taught with the previous material. In the step of presenting content, a scale of 3-5 (Insufficient) is obtained,

indicating that the presentation of content in learning videos is considered inadequate by students. In the step of providing guidance, a scale of 3-5 (Not enough) was obtained, indicating that the guidance provided in the learning video was less effective. In the step of encouraging performance, a scale of 6-8 (Good) is obtained, which means that efforts to encourage student performance are quite good and help in the learning process. In the step of providing feedback, a scale of 9-10 (Very Good) was obtained, indicating that the feedback provided was very helpful and constructive for students. In the performance assessment step, a scale of 9-10 (Very Good) was obtained, indicating that the performance assessment was carried out very well and in line with expectations. And in the final step, namely increasing retention and transfer, a scale of 3-5 (Poor) was obtained, indicating that efforts to increase retention and transfer of knowledge were less effective in learning videos. This means that overall learning videos are considered very good at attracting attention, conveying learning objectives, providing feedback, and assessing performance. However, there are weaknesses in presenting content, providing guidance, and improving knowledge retention and transfer. Results of Video Analysis of Student Learning in the Teacher Professional Education Program Based on Gagne's Learning Theory showed in [Table 2](#).

**Table 2.** Results of Video Analysis of Student Learning in the Teacher Professional Education Program Based on Gagne's Learning Theory

No.	Gagne's Step Theory of Learning	Content in Learning Videos	Analysis Results
1.	Get Attention	Use of animation, interesting questions, or visual illustrations at the beginning of the video	Most videos succeed in getting students' attention in an effective way
2.	Delivering Learning Objectives	Statement of learning objectives at the beginning of the video	Almost all videos clearly convey the learning objectives at the beginning
3.	Stimulate Recall (Provoke memories of previous material)	Repetition of previous material or connecting new material with previous knowledge	Some videos adequately connect new material to previous knowledge
4.	Presenting Content	Presentation of core material clearly and structured	Variations in quality, some videos lack structure and clarity in presenting the material
5.	Provide Guidance	Providing examples, detailed explanations, or step-by-step guides	Study guides are provided, but some videos are less detailed in their explanations
6.	Driving Performance	Activities or assignments that ask students to apply what they have learned	Most videos include activities to apply the material, but some are less challenging
7.	Provide Feedback	Responses to student performance, such as error correction or positive reinforcement	Feedback often lacks consistency and detail
8.	Assessing Performance	A short assessment or test at the end of the video to measure student understanding	Performance assessments vary, with some videos not including a final evaluation

No.	Gagne's Step Theory of Learning	Content in Learning Videos	Analysis Results
9.	Increase Retention and Transfer	Summary of material and tips for applying knowledge in other contexts	Only a few videos provide summaries and tips for knowledge transfer

The table above illustrates how each step of Gagne's learning theory is applied in the learning videos analyzed, as well as showing areas of strength and weakness that need to be improved to improve the quality and effectiveness of learning videos.

## Discussion

The results of content analysis of learning videos based on Gagne's learning theory show variations in the application of the nine instructional steps. The first step, namely getting students' attention, is generally implemented well. Most videos use animation, interesting questions, or visual illustrations that are effective in attracting students' attention at the beginning of learning. This shows the awareness of Teacher Professional Education Program students of the importance of starting videos in an interesting way to focus students' attention. In line with previous research that focusing students' attention when learning is important (Maylitha et al., 2023; Syukrina et al., 2023). The second step, conveying the learning objectives, also seems quite consistent. Almost all videos clearly state the learning objectives at the beginning, which helps students understand what is expected of them and what they will learn. This is a positive indicator that Teacher Professional Education Program students understand the importance of communicating learning objectives explicitly to guide student focus and effort during learning. In line with previous research that conveying learning objectives is important in learning activities (Intan et al., 2022; Zahra, 2022).

However, in the third step, namely stimulating recall of previous knowledge, there are several shortcomings. Some videos are less effective in connecting new material with the knowledge students already have. Despite attempts to repeat previous material, not all videos succeed in facilitating this process optimally. Links between new material and old knowledge are essential to help students relate new information to what they already know, thereby increasing understanding and retention (Arafah et al., 2023; Lay et al., 2024).

The stimulus presentation step (step four) shows variations in the quality of material delivery. Some videos succeed in conveying the core material clearly and structured, but there are also those that are less structured, making it difficult for students to follow the learning flow. Therefore, a good presentation requires the ability to organize material logically and convey it in a way that is easy to understand. In accordance with previous research, namely the importance of conveying lesson material in a way that is easily understood by students (Rombean et al., 2021; Wulandari et al., 2023). In the step of providing study guides (step five), many videos provide examples and explanations, but not all provide detailed enough guidance. An effective study guide should include step-by-step explanations that help students understand concepts in depth and know how to apply them. In line with previous research which states that in learning activities a teacher needs to provide guidance (Nusroh & Luthfi, 2020; Suryana & Iskandar, 2022).

The sixth step, generating performance, also showed mixed results. Most videos include activities or assignments to apply the material, but some are less challenging or less relevant to the learning objectives. Well-designed activities can strengthen students' understanding and give them the opportunity to apply what they have learned (Arifa, 2021; Mega & Madani, 2023). The seventh step, providing feedback, often lacks consistency and detail. Good feedback should provide clear information about a student's performance,

including correction of errors and positive reinforcement for correct performance. Without adequate feedback, students may not know whether they have understood the material correctly or where they need to improve. This was stated in previous research that feedback is an important step in learning activities (Misbah, 2022; Nissa & Putri, 2021).

In the eighth step, assessing performance, there are variations in the use of the final assessment. Some videos do not include assessments to measure student understanding, which is a significant weakness. Performance assessment is very important to ensure that students have achieved learning objectives and understand the material taught (Nurhasanah et al., 2024; Pohan et al., 2023). Finally, the step of improving retention and transfer (step nine) also indicates areas that need improvement. Only a few videos provide summaries and tips for applying knowledge in other contexts. Good summaries and guides for knowledge transfer can help students retain what they have learned and apply it to new situations. Increasing knowledge retention and transfer is important in learning activities (Al-Mahiroh & Suyadi, 2020; Putri et al., 2024).

Overall, this analysis shows that although there are many strengths in the instructional videos created by Teacher Professional Education Program students, there are also several areas that require improvement. Further training and support in applying Gagne's instructional theory can help improve the quality and effectiveness of instructional videos, thereby providing greater benefits to students.

The results of this research indicate that the learning video content created by students of the Teacher Professional Education Program has variations in the application of Gagne's nine instructional steps. Most videos demonstrate a good understanding of getting students' attention and presenting learning objectives clearly. However, there was variation in the quality of presentation of the material, with some videos being less effective in facilitating students' understanding and motivating them to learn further. Additionally, the analysis shows that measures such as providing feedback and measuring student performance have not been implemented consistently. These findings indicate the need for further training and support in the use of instructional theory to improve the quality of the resulting learning videos.

This research highlights the importance of improving the quality of teacher education through more comprehensive training in the Teacher Professional Education Program. By including intensive training on the application of Gagne's learning theory, Teacher Professional Education Program students can design and produce more effective and structured learning videos. Educational institutions should develop training programs that include practical workshops, interactive e-learning modules, and mentoring sessions to help students master Gagne's instructional steps. In addition, providing adequate resources and technological support, such as video editing software and quality recording equipment, will greatly support students in creating high-quality and interesting video content.

Another implication of this research is increasing the effectiveness of student learning through learning videos designed based on Gagne's theory. Good videos can increase student engagement, help them understand concepts more clearly, and improve knowledge retention. In addition, this research opens up opportunities for further studies regarding the application of other learning theories in making learning videos and their influence on various aspects of student learning. With the right training and support, Teacher Professional Education Program students can produce more effective learning videos, which in turn will improve the quality of education and student learning outcomes in the future.

This research also has limitations, namely that it only analyzes based on learning videos made by students of the Teacher Professional Education Program. In addition, this research uses a descriptive qualitative approach which, although providing in-depth insights,

does not allow for more objective quantitative measurements regarding the effectiveness of applying Gagne's theory. For future research, it is recommended that additional analysis be carried out such as document analysis, including scripts or video scripts and lesson plans and interviews. Further research can also explore the application of other learning theories and compare their effectiveness with Gagne's theory in making learning videos.

#### 4. CONCLUSIONS AND SUGGESTIONS

The conclusion of this research shows that the learning video content created by students of the Teacher Professional Education Program has implemented several instructional steps of Gagne's learning theory well, such as getting attention, conveying learning objectives, and presenting stimuli clearly. However, there are several areas that need improvement, such as a lack of connection between new material and previous knowledge, a lack of detailed study guides, inconsistent feedback, and the absence of a final assessment to measure student understanding. With the right training and support in applying Gagne's theory, Teacher Professional Education Program students can improve the quality and effectiveness of their learning videos, thereby providing greater benefits for students' future learning processes. This research also shows the importance of integrating strong learning theories in the creation of learning materials, which can become a solid foundation for the development of effective learning practices in the field of education.

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