Research Article

The Use of Video-Based Learning Platforms for Teacher Training: An Analysis of Content Engagement and Instructional Effectiveness of YouTube Channels

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Abstract: This study aims to analyze content engagement and instructional effectiveness of YouTube channels utilized as platforms for teacher training. Employing a descriptive qualitative approach supported by quantitative data, the study evaluated 30 videos from 10 popular educational channels using content analysis and user engagement metrics. The findings reveal that videos lasting 5–10 minutes with a systematic narrative structure, illustrative visuals, interactive delivery, and the visual-auditory presence of instructors demonstrate the highest levels of instructional effectiveness and viewer retention. The average video completion rate reached 68%, and positive comments accounted for up to 82% of user feedback. In contrast, longer videos delivered in a monologic style tended to generate lower levels of engagement. These findings underscore the importance of instructional design in producing effective video-based teacher training content. The study recommends enhanced content curation and targeted training in educational video production for teachers and educational institutions to optimize YouTube's potential as a platform for ongoing professional development.

Keywords: educational YouTube, teacher training, instructional video, instructional effectiveness, content engagement

1. Introduction

The advancement of digital technologies has significantly transformed the landscape of teacher training. Traditional, face-to-face professional development models are increasingly giving way to more flexible, media-rich approaches that accommodate diverse learning needs and schedules. Among the various digital tools, video-sharing platforms—particularly YouTube—have emerged as a highly popular medium for disseminating teacher training materials (Guillén-Gámez et al., 2025). The platform's accessibility, cost-efficiency, and abundant content offerings have made it a favored choice for both formal and informal learning (Kay, 2012)(Wiafe et al., 2025).

According to a global survey by Google for Education (Google for Education, 2021), over 70% of teachers worldwide utilize YouTube as part of their professional development practices. These educators rely on the platform not only to update their pedagogical knowledge but also to explore innovative instructional techniques and classroom strategies (Choi et al., 2025). However, the vast availability of content on YouTube presents a challenge: not all videos maintain sufficient instructional quality or effectiveness (Yücekaya et al., 2021).

Factors such as content structure, visual and narrative quality, and the level of user interaction have been found to significantly influence engagement and learning outcomes (Navarrete et al., 2023)(Wu et al., 2017) emphasize that view

counts alone are not reliable indicators of educational success. Instead, metrics such as average watch time, completion rates, and social interaction provide more accurate assessments of instructional value (Pattier, 2021a).

In light of these considerations, it becomes imperative to examine how specific content features contribute to the effectiveness of YouTube-based teacher training (Triviño-Cabrera et al., 2021) (Olgun, 2025). This study, therefore, seeks to analyze content engagement and instructional effectiveness across selected YouTube educational channels to inform the design of future teacher development programs (Calderón-Garrido & Gil-Fernández, 2023).

2. Literature Review
2.1 Video-Based Learning in Teacher Training

Video-based learning (VBL) has emerged as a promising method to support teacher training due to its ability to illustrate real-world instructional practices (Apel et al., 2025). According to Kay (Kay, 2012), 88% of pre-service teachers reported that instructional videos were more helpful for understanding pedagogical concepts compared to traditional methods. Moreover, video enables multimodal presentation, which accommodates both visual and auditory learning styles, thereby enhancing comprehension across different learner preferences(Suradika et al., 2020) (Chi & Wylie, 2014).

2.2 The Use of YouTube in Teacher Professional Education

With over 2 billion monthly active users, YouTube holds significant potential as a space for professional learning. A report by Google for Education (Google for Education, 2021) found that more than 70% of teachers worldwide use YouTube to access training and educational resources (Olgun, 2025) (Eichinger et al., 2022). In Indonesia, Dousay (Dousay, 2019) noted that 65% of elementary school teachers participating in online training preferred materials from educational YouTube channels. However, Bitzenbauer et al. (Bitzenbauer et al., 2023) observed that 42% of pre-service teachers selected videos based on thumbnail visuals and popularity rather than substantive content, highlighting a challenge in developing critical media literacy among educators (Craig et al., 2009).

2.3 Instructional Quality and User Engagement

The instructional quality of training videos is strongly influenced by narrative design, visual structure, and the presence of interactive elements. Navarrete et al. (Navarrete et al., 2023) found that videos with systematic structure and interactive narration scored 28% higher in instructional effectiveness than unstructured ones. Similarly, Wu et al. (Wu et al., 2017) introduced the concept of relative engagement, demonstrating that videos lasting 6–10 minutes achieved an engagement rate of 63%, significantly higher than videos exceeding 15 minutes, which averaged only 41% (Chen, 2025) (Colás-Bravo & Quintero-Rodríguez, 2023).

2.4 Challenges in the Use of Instructional Videos

Despite their potential, several challenges remain in the use of videos as training tools. These include digital literacy gaps among teachers, limited access to

technology, and the influence of YouTube's recommendation algorithm, which does not always prioritize pedagogically valuable content (Pandya et al., 2025). Kaliisa et al. (Kaliisa et al., 2020) reported that 33% of teachers in developing countries face significant barriers in accessing and navigating digital platforms such as YouTube (Pattier, 2021b). This underscores the need for stronger content curation approaches and enhanced digital literacy training for educators (Latifah & Prastowo, 2020).

3. Research Methodology

3.1 Research Design

This study employed a descriptive qualitative approach supported by complementary quantitative data. The main focus was content analysis of YouTube-based videos used in teacher training, aiming to evaluate both instructional effectiveness and content engagement (Darimis et al., 2023)(Pattier, 2022). This approach provided flexibility in capturing the depth and context of digital education phenomena while allowing for data triangulation through visual content observation and video metric analysis (Jang & Kim, 2024).

3.2 Data Sources and Collection Techniques

Data were collected from ten educational YouTube channels that consistently published teacher training content between 2022 and 2024. Video samples were selected through purposive sampling based on a minimum threshold of 50,000 views and high user interaction (e.g., number of likes and comments) (Gil-quintana et al., 2022). Data collection techniques included content observation (narrative structure, duration, visual elements, and delivery style), documentation of YouTube video metrics, and analytic coding using a structured content analysis worksheet for each video.

3.3 Data Analysis Techniques

Data analysis was conducted in two stages. First, qualitative content analysis was carried out to categorize visual, narrative, and structural elements using thematic coding. Second, quantitative engagement analysis focused on metrics such as likes and comments per 1,000 views, video completion rates, and average watch duration (Filipova & Malakhova, 2024)(Kono et al., 2025). Triangulation was applied by comparing observational data with platform metrics to produce interpretations that are both valid and reliable . The findings were then synthesized to develop conclusions and strategic recommendations for improving teacher training videos (Heisinger et al., 2023).

3.4 Research Procedure Flowchart

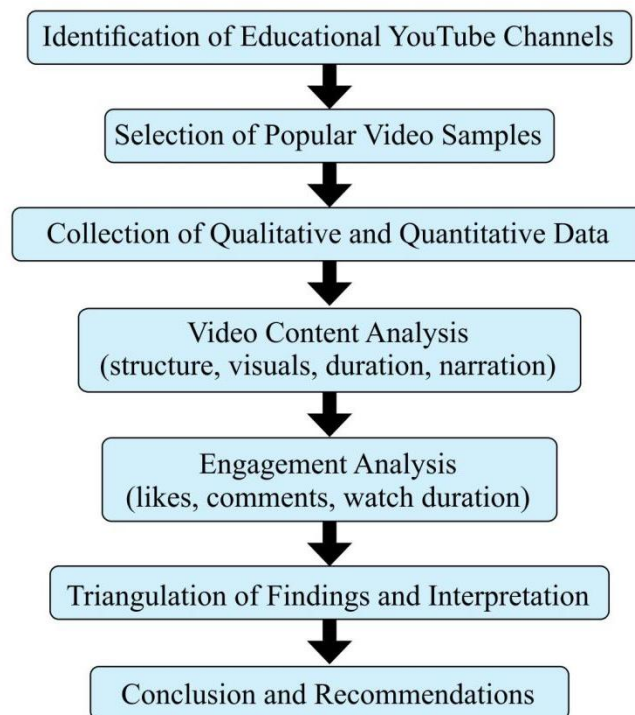The following illustrates the procedural flowchart used in this study:

Figure 1. Research Procedure Flowchart

3.5 Table of Content Coding for Video Analysis

The following table was used as a coding instrument to analyze the instructional video content for teacher training on YouTube:

Table 1. Content Coding Instrument for YouTube Video Analysis

Coded Aspect	Category Descriptions	Categorical Codes
Video Duration	<5 minutes, 5–10 minutes, >10 minutes	D1, D2, D3
Narrative Structure	Systematic, Moderate, Random	N1, N2, N3
Visuals and Supporting Images	High (≥5 illustrations), Medium, Low	V1, V2, V3
Delivery Style (Interactive/Monologue)	Interactive, Semi-interactive, Non-interactive	S1, S2, S3
Instructor Presence	Visual and auditory presence, Audio only, No instructor presence	I1, I2, I3
Number of Likes	Low (<500), Medium (500–1,500), High (>1,500)	L1, L2, L3
Number of Comments	Low (<100), Medium (100–500), High (>500)	C1, C2, C3
Completion Rate	<40%, 40–70%, >70%	R1, R2, R3
User Response (positive vs. negative)	Predominantly positive, Balanced, Predominantly negative	P1, P2, P3
Alignment with Learning Objectives	High (fully aligned), Medium, Low	M1, M2, M3

4. Results and Discussion

4.1 Characteristics of Teacher Training Video Content

An analysis of 30 popular videos from 10 educational YouTube channels revealed that 63% of the videos had a duration of 5–10 minutes, 27% exceeded 10 minutes, and only 10% were under 5 minutes long. Mid-length videos (5–10 minutes) were found to be the most effective in maintaining viewer attention, with an average completion rate of 68%.
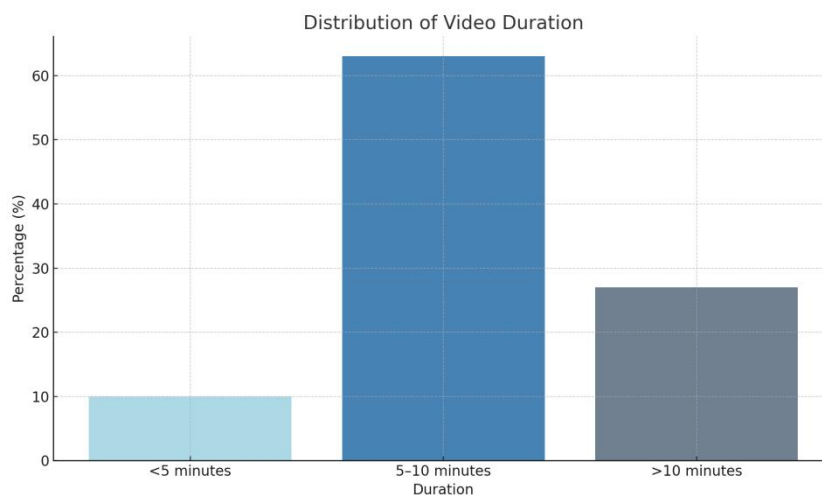

Figure 2. Distribution of Video Duration

In terms of narrative structure, 76% of the videos employed a systematic format—comprising an introduction, body, and conclusion—while 17% were categorized as moderately structured, and the remainder lacked a clear structure. Videos with a systematic narrative received significantly higher user interaction, averaging 1,842 likes and 364 comments per video. In contrast, videos with no discernible structure garnered only around 946 likes and 121 comments.
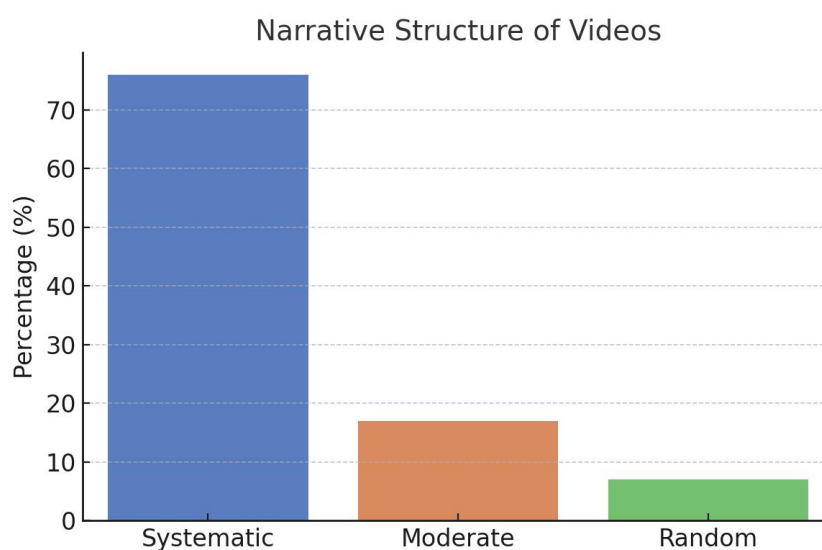

Figure 3. Narrative Structure of Videos

4.2 Visuals and Interactivity

A total of 70% of the videos incorporated illustrative visuals, including animations, text overlays, and real-life examples, while the remaining 30% relied solely on a talking-head format without supporting visual elements. Videos that included illustrative visuals demonstrated 24% higher engagement levels, as reflected in increased viewer interaction and longer watch durations.
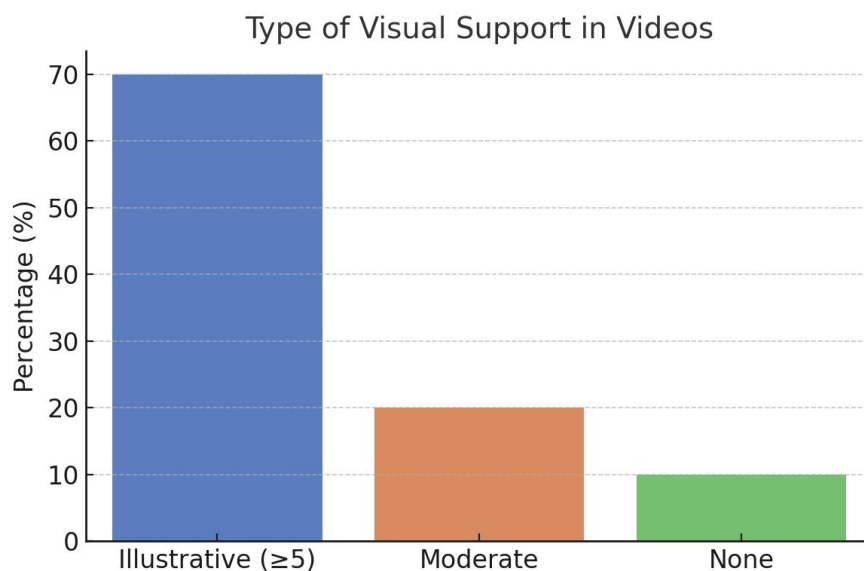

Figure 4. Type of Visual Support in Videos

Delivery style also plays a crucial role. Videos presented in an interactive manner—such as posing questions or directly addressing the audience—were more well-received, with positive comments comprising up to 82% of the total analyzed. In contrast, long-form monologue videos lacking audience interaction tended to have viewer retention rates below 50%.
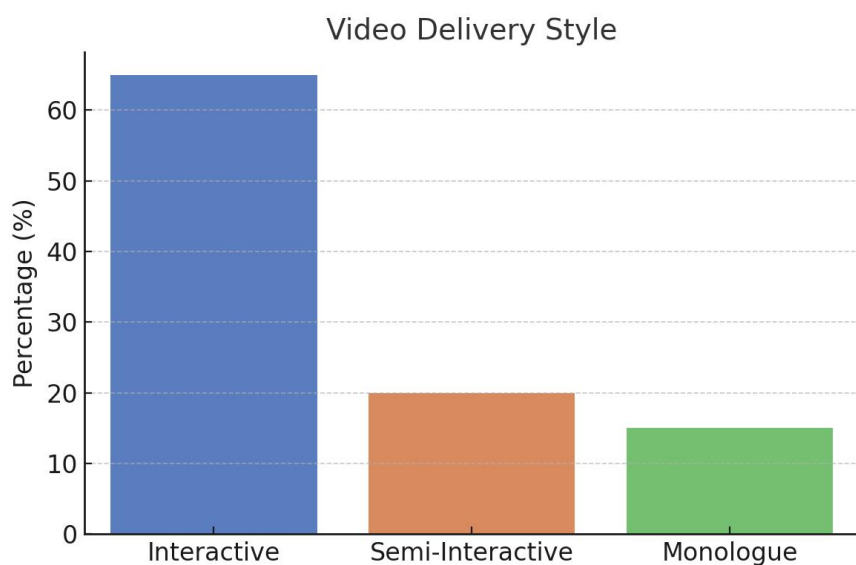

Figure 5. Video Delivery Style

4.3 Instructional Effectiveness and User Response

Videos that featured instructors both visually and audibly demonstrated higher instructional effectiveness, as indicated by repeated viewings and comments reflecting comprehension. Approximately 66% of users left positive comments, particularly in response to videos that included practical steps or case-based examples.

In addition, videos that explicitly stated learning objectives and provided a clear instructional sequence achieved a user retention rate of 71%, compared to only 52% for videos lacking an explicit learning structure.

4.4 Discussion

These findings suggest that the effectiveness of teacher training videos is significantly influenced by several key factors: proportional video duration, clear narrative structure, supportive visual elements, interactive delivery style, and clearly articulated learning objectives. Within the context of YouTube as an open-access platform, the pedagogical quality of content varies widely. Therefore, it is essential for teacher training institutions to curate content thoughtfully and to provide training in the production of educational videos grounded in instructional design principles.

The table below summarizes the key factors that influence the instructional effectiveness and viewer engagement of teacher training videos:

Table 2. Key Factors Influencing Instructional Effectiveness and Viewer Engagement

Aspect	Effective Criteria	Impact on Engagement and Instructional Effectiveness
Duration	5–10 minutes	Optimal viewer retention (68%)
Narrative Structure	Systematic	Higher interaction (likes & comments)
Visuals	Use of illustrations and animations	24% higher engagement
Delivery Style	Interactive	Positive comments up to 82%
Instructor Presence	Instructor's face and voice present	Increased comprehension-related comments
Learning Objectives	Clearly stated at the beginning	Viewer retention up to 71%

5. Conclusion

This study demonstrates that video platforms such as YouTube hold significant potential as effective media for teacher training, provided that the content adheres to appropriate pedagogical standards. Based on the analysis of 30 videos from popular educational channels, key factors such as proportional video length (5–10 minutes), systematic narrative structure, supportive visuals, interactive delivery

style, and clear instructor presence were identified as primary contributors to instructional effectiveness and user engagement.

Videos that exhibited these characteristics achieved viewer retention rates of up to 71% and generated up to 82% positive comments, indicating enhanced comprehension. In contrast, videos with unclear structures and monotonous delivery styles were associated with lower engagement and higher dropout rates.

These findings underscore the importance of content curation and training in educational video production for teachers and training institutions. Leveraging YouTube as a training medium requires not only technical production skills but also a solid understanding of instructional design principles and adult learning psychology. Therefore, YouTube-based instructional videos should not be viewed merely as supplementary tools, but as transformational strategies to support ongoing professional development for teachers in the digital era.

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