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The Effectiveness of Educational Videography in Teacher Education: A Qualitative Approach

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Abstract
The present study explores the experiences and perceptions of ASPETE teacher trainees regarding the use and creation of educational videos as a mean of enhancing the teaching process. The research investigates video effects on multimodal learning through an assessment of teacher candidates who evaluate video benefits for student learning and participation. The program teaches two main subjects which combine digital literacy education with video production skills and team collaboration development. This approach is consistent with the extant literature, which includes findings that suggest the use of videos can facilitate understanding of more challenging subjects and enhance the interactive nature of the classroom environment. The research data indicate that trainees find videos to be an effective educational resource. The participants acquired vital teaching competencies for their upcoming practice through their intentional video creation and viewing activities. The research indicates that teachers require training about technology systems and educational methods which use multimedia content. Research shows that teacher training programs which use multimedia tools lead to better teaching methods and video stands out as the most effective digital tool for modern education.

Keywords: Educational Videography, Teacher Education, Effectiveness, Qualitative Research

1. Introduction

The fast-paced technological advancement now enables people to access modern educational methods together with educational materials. Educational videos serve as an effective learning tool which merges contemporary technology with educational content to develop an improved learning space. Students will be able to interact with content using multimodal learning processes through these videos. The blended approach delivers complex

information through visual and auditory and verbal stimuli which Mayer (2003) states helps students understand and retain information better.

The use of multimodal content in video format enables teachers to support different learning approaches which students have which leads to higher student participation during learning activities (Guo, Kim and Rubin, 2014). It allows more interactivity and involvement among students receiving it (Giannakos et al., 2014). Additionally, the capability for educators to tailor materials and use and reuse them as necessary offers even more benefits to educators (Mayer, 2003).

Video can support the first principle of a multimodal approach to CBL in accordance with Cognitive Load Theory and the Cognitive Theory of Multimedia Learning (Sweller, 2010; Mayer, 2002), enabling simultaneous information transfer across multiple channels, reducing external cognitive load and specificity of understanding of complex concepts. The integration of diverse multimodal domains strengthens cognitive engagement, however, and allows for transformational learning, providing students ways of approaching knowledge from multiple angles and supporting learning transfer and building analytical and critical thinking skills together (Kress & Van Leeuwen, 2001; Zhang et al., 2006).

This study constitutes an extension of two prior papers that investigated the usability of educational videos and the intention of teacher trainees to utilise them. Prior studies have indicated that educators regard videos as a valuable asset for enhancing teaching practices. The majority of respondents expressed favourable sentiments regarding the learning efficacy and potential of the video learning method. The research needs additional study to determine how video production and video consumption affect teachers' professional beliefs which subsequently affect their classroom teaching methods.

In this context, this study utilises qualitative data to analyse the experiences, challenges and benefits that trainee teachers identify as being related to the use of videos in their teaching. The research investigates how educational video production enables future teachers to stay current with digital classroom advancements which now heavily depend on multimedia technologies for learning and teaching methods.

2. Theoretical Framework

2.1 Multimodal Learning and Cognitive Load Theory

The Multimodal learning theory uses two or more sensory channels which merge visual and auditory and verbal stimuli to boost cognitive processing and enhance understanding (Mayer, 2002; Sweller, 2010). The different presentation methods function as connected elements which support students during their multiple mental operations required for learning information (Sweller, 2010). The Cognitive Load Theory (Sweller, 2010) shows that distributing information across multiple channels makes students work less mentally to understand complicated or unfamiliar content which they learn independently and from outside resources.

The educational field establishes learning environments through videos which use visual elements such as images and animated graphics together with auditory components that include speech and audio and verbal content that includes text and captions to enable students to learn efficiently through quick information processing (Guo, Kim, & Rubin, 2014). Students who learn through this multimodal approach develop the ability to use their complete mental abilities which enables them to understand and remember information better (Zhang et al.,2006).

Moreover, videos allow students to control how much information they are receiving and the speed at which they absorb it, allowing students to learn with an abundance of versatility that gears the learning process specifically for them, beneficial to students who may be a bit slower to understand.

Multimodal video in education has been shown to increase engagement of the student body and enable active learning as opposed to passive learning in the sense that students become active participants in the material they

are receiving. The key is to balance the assumption of practical knowledge with the added value of true in-field experience.

Thus, instructional videos can be seen as a holistic medium for information transfer, advanced level cognitive processing, and associations between varied information or skills (Mayer, 2003).

2.2 Educational Videos and Pedagogical Effectiveness

Educational videos have been shown to be a fruitful learning strategy that enhances multimodal learning, making them a tool for active learning approaches that encourage the development of critical thinking and increase student engagement. Video can be used as a multiformat learning tool (audio, visual, text), giving educators an opportunity to introduce content that is both theoretical and practical, creating a better experience for the learner as not only is comprehension much more vivid but much more accessible (Yousef, Chatti, & Schroeder, 2014).

Numerous studies have also shown that interactive features such as quizzes, discussions, and consolidation questions lead to improvements in learning outcomes and attention (Giannakos et al., 2014). This is explained by the higher involvement of students with both the content and the learning process. It also allows students to synthesize what they know, associate new material with something they have already learned, and participate in a higher level of critical-thinking processes."

Video tutorials are considered one of most efficient tools in embedding digital technology in the learning process (Giannakos et al., 2014). They can be customised to meet the needs of the students and offer tailored learning experiences. In addition, these tutorials can be easily accessed by students, allowing them to plan their studying time flexibly, revisiting difficult concepts and reviewing knowledge until they feel confident that they have learned (Zhang et al., 2006).

3. Methodology

3.1 Research design

The interviews were semi-structured which allowed participants to talk about their experiences and perceptions with a high degree of freedom and ensured that the data collection process was sufficiently structured in order to tackle specific aspects of educational video production. Interviews began with a set of exploratory open-ended questions divided across three thematic areas. The thematic areas are the structure of the questions, while the themes are the result of the analysis.

3.2 Participants and framework

In-depth semi-structured interviews were conducted with 20 of ASPETE's trainees who had attended the training programme on data collection, which included the development and use of training videos. To have a mixture of perspectives, participants were chosen from those with varying educational experiences and digital technology exposure.

3.3 Data collection process

We structured our interview through a two-stage process: followed up with our participants mid-project to gauge their initial thoughts and challenges and again at the close of the project to capture the evolution of their perceptions and skills. All interviews lasted about 15–20 min and were recorded with the participants' consent.

3.4 Interview guide

The initial questions related about their background and experience in video production and offered some insights into the process of video production from materialisation to finalisation. "Between each of these stages, we asked

participants to articulate what they were feeling, and if they could describe their reaction to particular stages, so we could understand how people interpreted that experience and how it impacted their learning".

Second, in addition to the broader responsibilities of the position, the interview questions also explored the technical challenges faced in the process of producing the videos. The participants were asked to describe their challenges in using video tools, video and audio editing, and incorporation of AV material, and the support they'd received, either from peers or instructors. This information is analysed in such a way that, among other things, it will also indicate specific requirements and problems which should be solved, thus offering necessary data for educational improvement.

Lastly, participants were asked questions related to their understanding of video as an educational tool and their intention to use them in their future classes. Dismissing the opportunity that 'videos have a novelty to them because students are not used to seeing the same teaching videos', the trainees considered that videos could help to engage students' attention and help them understand the content better, seeing them as a valuable teaching tool and an opportunity to be included in their instruction. In addition to this, participants were asked to provide commentary on the inclusion of videos in (paper-based) methods/platforms, that were originally or traditionally devised to be paper-based and where users may be used to interacting with paper, confessing positive and negative points.

Thematic analysis was used to analyze the data, and again, this involved identifying recurring patterns and themes from the responses provided by the participants of this study.

3.5 Ethical principles

All participants were informed about the purpose of the research in order to consent to participate and to be recorded.

3.6 Data analysis

A thematic analysis was used to analyze the data that was treated as a retrospective process with possible returns to previous stages when deemed necessary. These was a familiarization with the data: The material was read repeatedly in order to understand the details. We took notes that were compiled for each interview on the key meanings related to the questions. A systematic coding followed of excerpts relating to experiences, difficulties, benefits, and perceptions regarding the production and use of educational videos as short meaning labels, which were applied to the entire data set. The codes were grouped into candidate themes based on recurring patterns and connections between participants' experiences and perceptions. The candidate themes were checked for the coherence of the excerpts they contained and their correspondence with the overall dataset. At this stage, revisions were made, such as merging, splitting, or discarding themes that were not sufficiently supported by the data. For each final theme, a brief definition was recorded that captured its central meaning, its boundaries, and, where necessary, sub-themes. Clear and descriptive titles were then selected. Finally, the presentation of the results was organized around the final themes, using indicative excerpts from the interviews and interpretive links to the research questions and theoretical framework.

4. Results

The analysis generated three main themes: (a) video for learning facilitation, (b) developing technical and digital skills, (c) as learners' intent to use video in their teachings. These themes gauge informative exchanges of experiences and perspectives held by potential future teachers and can add considerable insight to the educational video development model as a tool for professional development.

4.1 Enhancing understanding and facilitating learning

The interviews were structured around three main lines of questioning:

Production of the video Participants were asked questions about their impressions of producing the video and the benefits and challenges they experienced. They emphasised effects on their understanding of teaching and whether they felt that the process had given them new skills which would prepare them for their teaching career.

Technical challenges: The second set of questions focused on the technical challenges of using digital video recording and editing tools. The objective of this section was twofold: firstly, to document the challenges encountered by the trainees in this regard, and secondly, to assess whether the process enhanced their digital literacy and facilitated their familiarisation with the novel technological tools.

Educational Potential of Videos: The third set of questions focused on assessing the educational value of videos. Learners were asked to analyze how they believe videos can be used to enhance student learning and improve the teaching experience. Their responses provided information about how they perceive the educational utility of videos and what pedagogical goals can be achieved.

Intention to Use Videos in Class: The final set of questions focused on the learners' intention to incorporate videos into their teaching practice. Trainees were asked to describe if and how they intend to use instructional videos in their own future classes, as well as their expectations and concerns about their effectiveness in the learning process. After the interviews were collected, the data were analysed thematically, using coding to detect key patterns and recurring themes in the responses. The analysis generated three main themes: facilitation of learning, technical skill development and intention to use the videos in the classroom. Each theme contains an extensive description of the learners' experiences and perceptions and reflects how the creation and use of instructional videos influenced their pedagogical approach and enhanced their intention to use videos in their future teaching careers.

Student Report:

"The use of videos brings concepts to life and helps students get more involved." (Interview with Maria)

4.2 Developing Digital Literacy and Collaboration Skills

The learners found that creating educational videos helped them develop their digital literacy skills while they learned to work together in educational settings which needed teamwork and coordination. The students needed to learn about digital tools and editing software through video production because they had to create an educational multimedia material from beginning to end. Not only digital literacy with the technical side of things, but an understanding of the principles of video production and editing. It also needed to develop new design skills and apply critical thinking to the content in development.

The research team identified video production as their primary strength because it enabled trainees to work better together through improved task coordination and work distribution and enhanced communication of ideas. The team members proved their worth to production completion through their distinct methods of work. For instance, scriptwriting was the responsibility of some, while others directed and edited the footage, and some oversaw the final editing.

The trainees reported that this experience helped them develop their skills for team research work through better coordination between team members who needed to respect each other's duties (Koehler & Mishra, 2009). The team developed their communication abilities to a completely different standard because they needed to work together to solve production problems. The video production process enabled participants to develop self-management and adaptability skills because they needed to adjust their work according to project needs and learn proper feedback exchange methods.

Participant observation:

The team-based process of video creation enabled me to build my technical abilities while I gained experience in collaborative work and developed my communication skills. The experience was a unique opportunity to learn

how to manage my time and organise myself better within a team, working together to overcome any difficulties that arose." (Interview 5)

This experience allowed them to understand how the integration of digital tools, such as videos, can be applied in modern educational environments where not only the knowledge of technology but also the ability to work effectively in teams is required (Yousef et al., 2014). This combined experience of developing both technical and social skills through the creation of instructional videos is considered by participants to be fundamental to their professional development and preparation for the role of teacher.

Student Report:
"Working together has made us learn to communicate better and trust each other." (Interview with Tania)

4.3 Intention to Integrate Videos into Pedagogical Practice

Most trainee teachers showed they would definitely use educational videos in their upcoming teaching work. The decision to use videos for instruction stems from their belief that these videos have the ability to drive student motivation while improving student focus during classroom learning. Students find videos to be an engaging platform which delivers knowledge effectively because they present information through three different channels which include audio and video and text (Giannakos et al.,2014; Mayer, 2003).

The authors view videos as educational resources which enable students to learn complex material while promoting creative educational methods. The interview participant explained that video content helps teachers keep students engaged while building an interactive learning environment which turns students from passive observers into active participants (Interview 8). In accordance with the findings of Yousef et al. (2014) and Zhang et al. (The study by Wang and Lee (2006) shows that educational videos help students stay focused during active learning activities which strengthen their critical thinking abilities.

Students can learn at their own speed because videos provide them with this capability. The participants agreed that learners could review video content at their own speed which helped them understand the material better (Interview 12). The learning process of students becomes more independent because they can access teaching materials which leads to better opportunities for them to study the material.

Student Report:
"I will definitely use videos to make my lessons more interactive and interesting." (Interview with Elina)

5. Discussion

The research findings from this study confirm what international studies have shown about educational videos because they help students learn better while teachers build essential competencies. Studies such as Mayer (2002) and Sweller (2010) highlight the potential of multimodal learning to enhance the effectiveness of learning by reducing cognitive load and providing alternative ways of perceiving and understanding knowledge.

The presentation of information through audio and video channels enables dual-channel processing which helps students control their information intake to achieve better comprehension. The current research supports these findings because ASPETE teacher trainees stated that video content delivered better visual representations of intricate teaching methods which students could easily grasp.

Simultaneously, this effort also represents a valuable input on the discussion of the implementation of the educational videos as unique items of the digital education for future educator. The research conducted by Giannakos et al. (2014) and Yousef et al. Students can establish an active learning space through video technology which allows them to engage with their education instead of simply watching (2014). Teachers can develop their digital literacy competencies through video creation and consumption according to Koehler and Mishra (2009) who identified these technical skills as necessary for teaching technology effectively based on the TPACK model.

The research evidence from qualitative data shows educational videos function as student learning resources which help them develop educational competencies. Students can actively participate in educational activities through videos which also enhance classroom engagement and provide teachers with new ways to interact with their students.

6. Conclusions and Recommendations

The present study clearly demonstrates that ASPAITE teacher trainees evaluate the creation and use of videos as one of the most valuable and effective ways of enhancing the educational process. The participants view instructional videos as educational content which improves traditional teaching methods through their interactive audiovisual format that supports different learning needs (Mayer, 2003; Guo, Kim, & Rubin, 2014). Students can learn complex subjects better through video content because it allows them to experience educational materials through different learning approaches which unite visual and auditory methods to enhance their ability to remember information (Zhang et al.,2006).

In order to cultivate digital literacy and the competencies required for the effective utilisation of technology within the classroom setting, it is proposed that educational video creation be integrated into the curricula of prospective teachers. A training programme that incorporates video production as a pedagogical approach will enhance the competencies of future teachers in two key areas. First, it will give them the skills to create educational content. Second, it will stimulate innovative creativity which prepares them for the current as well as future classroom generation and the upcoming innovative career field (Giannakos, Chorianopoulos, & Chrisochoides, 2014).

Also, this teaching methodology also encourages collaboration and cooperation as learners need to collaborate and create videos so learn communication and coordination. Although they facilitate the transmission of knowledge, the videos also connect concepts across disciplines and cultures, as they cover topics from multiple domains (Ito et al., 2013).

Thus, videos can work as a non-linear teaching tool making the students to experience the subject in different dimensions and understand & use knowledge in a contextual frame more efficiently. Therefore, we can say that video creation should be an essential part of the teacher education curriculum so as to enable the future teachers to learn the use of technology to bring interactivity, collaborative and personalized learning in actual classroom. Integrating technology into science education can enrich teachers' teaching repertoire and make them more adaptable and ready to meet the perpetual challenges of the current technological age.

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