

Multimedia Utilization and Instructional Effectiveness in Social Studies

John Kevin Mellorida Lumayag, LPT

Master of Arts in Education, Major in Teaching Social Studies, Cebu Technological University - Main Campus, Cebu City, Philippines.

Email of Corresponding Author: ijklumayag13@gmail.com

Publication history:

Received: September 3, 2026

Revised: October 5, 2026

Accepted: October 10, 2026

Published: October 11, 2026

International Journal of Sustainable and Integrated Studies, Vol. 1, No. 3, pp. 338–350, October 2026.

Abstract

This study examined the relationship between multimedia utilization and instructional effectiveness among Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus during the academic year 2026-2027. Anchored in the Technological Pedagogical Content Knowledge (TPACK) Framework and Cognitive Theory of Multimedia Learning, the study employed a descriptive-correlational research design involving 50 Social Studies teachers selected through complete enumeration. Data were gathered using an adapted and researcher-modified questionnaire and analyzed through descriptive statistics and Pearson's correlation coefficient. Findings revealed a generally low level of multimedia utilization ($M = 2.48$), with educational videos being the most frequently used resource. Instructional effectiveness was generally rated effective ($M = 2.55$), particularly in attaining learning objectives, while student engagement remained comparatively less effective. Time constraints emerged as the primary challenge, followed by technical skills and resource availability. Correlation analyses revealed no statistically significant relationships between multimedia utilization and instructional effectiveness ($r = 0.216$, $p = 0.132$) or between multimedia-related challenges and instructional effectiveness ($r = -0.123$, $p = 0.397$). The study concluded that instructional effectiveness depends on more than multimedia utilization alone, highlighting the importance of appropriate pedagogical integration and institutional support. It recommended adopting Project MILES (Multimedia Integration for Learning Enhancement in Social Studies) to strengthen teachers' technological competencies and instructional practices. The study supports Sustainable Development Goal 4 (Quality Education) and SDG 9 (Industry, Innovation and Infrastructure) by promoting technology-supported teaching and institutional capacity development. Its sustainability impact lies in supporting continuous faculty development, effective resource utilization, and long-term instructional improvement.

Keywords: Digital Competencies, Instructional Effectiveness, Multimedia Integration, Multimedia Utilization, Project MILES, Social Studies Instruction, Teacher Professional Development, Technology Integration

1. Introduction

The integration of multimedia technologies into higher education has created opportunities to improve instructional delivery, student engagement, and the presentation of complex subject matter. In Social Studies, educational videos, interactive presentations, digital documentaries, and online historical resources can help teachers explain historical events, geographical concepts, political systems, and cultural developments through more accessible and interactive learning experiences. However, effective multimedia integration requires more than technological availability. It depends on teachers' digital competencies, instructional strategies, resource accessibility, and institutional support. Recent research emphasizes that educational technologies are most beneficial when their use is aligned with learning objectives, appropriate pedagogy, and students' learning needs (Akram et al., 2022; Wohlfart & Wagner, 2023; UNESCO, 2023). This study examines multimedia utilization and instructional effectiveness among Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue

Campus (UCLM) during the school year 2026-2027. Specifically, it investigates the level of multimedia utilization, teachers' perceived instructional effectiveness, challenges encountered in technology integration, and the relationships among these variables. The findings will serve as the basis for developing an Action Plan intended to strengthen multimedia competencies and support more effective Social Studies instruction.

Multimedia technology has become an important instructional resource in contemporary education because it allows teachers to communicate information through visual, auditory, and interactive formats. In Social Studies, multimedia applications help present historical developments, geographical relationships, civic institutions, and cultural issues that may be difficult to explain through conventional lectures alone. Noetel et al. (2021) demonstrated through a systematic review that incorporating instructional videos into higher education can improve learning outcomes, particularly when videos are used to complement existing instructional approaches. Similarly, Hassan (2023) highlighted the educational potential of video-based content for supporting communication, engagement, and learning. The effectiveness of multimedia instruction depends on how teachers organize digital materials and connect them with instructional objectives. Akram et al. (2022) found that teachers' perceptions, competencies, and institutional conditions influence technology integration in teaching and learning. Wohlfart and Wagner (2023) likewise emphasized that successful educational digitalization requires teachers to develop appropriate technological knowledge while maintaining pedagogical effectiveness. In Social Studies instruction, multimedia resources may improve lesson clarity by providing visual representations of historical events, interactive presentations of social concepts, and digital access to documentary materials. However, technological integration should remain purposeful rather than simply replacing conventional teaching materials. UNESCO (2023) emphasized that educational technology must be evaluated according to its relevance, accessibility, effectiveness, and contribution to meaningful learning. Within the University of Cebu Lapu-Lapu and Mandaue Campus, examining multimedia utilization is important for understanding how Social Studies teachers incorporate educational videos, interactive presentations, digital documentaries, and online historical resources into their instruction. The study considers whether these practices are associated with instructional effectiveness in terms of lesson clarity, student engagement, classroom interaction, and attainment of learning objectives.

Recent research identifies multimedia-supported instruction as a potentially valuable approach to improving learning experiences in higher education. Noetel et al. (2021) found that instructional videos can improve learning when integrated with appropriate teaching strategies. Hassan (2023) similarly identified the instructional value of educational video content, while Polat (2023) demonstrated that the presentation of instructors in educational videos can influence cognitive, social, and affective dimensions of learning. Verma et al. (2023) further emphasized the importance of instructional presentation and teacher behaviors in developing engaging educational videos. Research also highlights the importance of multimedia design in supporting students' understanding and motivation. Mutlu-Bayraktar (2024) found that emotional design is an important consideration in multimedia learning environments, although its effectiveness depends on instructional conditions and learner characteristics. Conrad et al. (2024) likewise examined immersive virtual reality as an educational medium and identified its potential to support learning when matched with appropriate objectives and instructional contexts. These findings suggest that multimedia effectiveness depends not only on the format used but also on instructional design and implementation. Digital technologies have also contributed to changes in learning environments and instructional interaction. Fernández-Sánchez et al. (2022) explained that technology integration involves several interconnected conditions, including institutional culture, teacher competence, instructional planning, and support systems. Akpen et al. (2024) found that online learning outcomes and student engagement are influenced by the design and implementation of digital learning experiences. Similarly, Fuentes and LaBad (2025) synthesized evidence suggesting that digital learning tools can support engagement and academic achievement in higher education, particularly when they encourage active participation and meaningful interaction. Teacher competence remains a central factor in successful multimedia integration. Claro et al. (2024) identified the importance of defining and assessing teachers' digital competencies, particularly their ability to apply technology in instructional planning and classroom practices. Moraes et al. (2025) further emphasized that effective digital instruction in higher education requires continuous professional development, adequate infrastructure, and institutional policies that respond to technological demands. Despite these potential benefits, multimedia integration continues to face implementation challenges. Msambwa et al. (2024) identified inadequate technological knowledge, insufficient professional development, limited resources, and institutional constraints as important barriers to ICT integration. Akram et al. (2022) likewise emphasized that teachers' readiness and perceptions influence their adoption of digital instructional tools. These findings indicate that educational institutions must address both technical and pedagogical concerns to support effective technology integration. Collectively, the literature establishes that multimedia resources can contribute to instructional effectiveness when supported by appropriate instructional design, teacher competence, and institutional conditions. However, the benefits identified in previous studies should not automatically be interpreted as evidence of effectiveness in every teaching context. Examining teachers' actual multimedia practices and their perceived instructional effectiveness remains necessary, particularly in tertiary-level Social Studies education.

The integration of multimedia technologies into Philippine education is connected to broader efforts to improve instructional quality, develop teachers' competencies, and respond to changing educational demands. The 1987 Philippine Constitution, particularly Article XIV, Sections 1 and 2, establishes the State's responsibility to protect and promote the right to quality education. These provisions support continuous improvements in educational practices, including the appropriate use of instructional technologies. Republic Act No. 10533, or the Enhanced Basic Education Act of 2013, provides a policy foundation for learner-centered and contextualized instruction within Philippine basic education. Although the present study focuses on higher education, the law provides a broader educational context for instructional practices that emphasize relevance, learner participation, and appropriate teaching approaches. The Philippine Professional Standards for Teachers, adopted through Department of Education (2017), recognize the importance of content knowledge, pedagogy, professional competence, and ICT integration. While these standards primarily guide basic education teachers, they provide relevant professional principles for understanding technology-supported teaching. Recent international research provides additional perspectives applicable to Philippine educational institutions. UNESCO (2023) emphasized that technological integration requires equitable access, teacher preparation, and sound educational governance. Msambwa et al. (2024) similarly identified infrastructure, professional development, and institutional support as essential conditions for effective ICT integration. At the University of Cebu Lapu-Lapu and Mandaue Campus, multimedia integration in Social Studies teaching may involve differences in technological competence, instructional resource availability, internet connectivity, and preparation time. These conditions warrant examination because the successful use of multimedia depends on teachers' capacity to select and implement digital resources appropriate to their instructional objectives. Investigating multimedia utilization within this institutional setting may provide evidence for strengthening instructional practices and identifying areas requiring professional development and technological assistance. The study therefore addresses a specific higher education context while contributing to the broader discussion of multimedia-supported instruction.

The study is anchored in the Technological Pedagogical Content Knowledge (TPACK) Framework and Cognitive Theory of Multimedia Learning. These foundations explain how technological competence, instructional strategies, subject matter knowledge, and cognitive processes influence multimedia-supported teaching. Their original publications are retained because they provide essential theoretical explanations that remain relevant to contemporary educational research. The TPACK Framework developed by Mishra and Koehler (2006) explains that effective technology integration requires the interaction of technological knowledge, pedagogical knowledge, and content knowledge. It identifies seven interconnected knowledge domains: Content Knowledge, Pedagogical Knowledge, Technological Knowledge, Pedagogical Content Knowledge, Technological Content Knowledge, Technological Pedagogical Knowledge, and Technological Pedagogical Content Knowledge. This framework emphasizes that educational technologies must support instructional objectives and appropriate teaching strategies rather than function as independent instructional solutions. In Social Studies, TPACK provides a foundation for understanding how teachers combine multimedia resources with subject-specific instructional approaches. Educational videos, digital historical documents, interactive maps, and multimedia presentations become more meaningful when selected according to lesson objectives and learners' needs. Wohlfart and Wagner (2023) reinforced the continuing relevance of TPACK in explaining teachers' roles in educational digitalization, while Claro et al. (2024) emphasized the importance of teachers' digital competencies in instructional planning and implementation. The Cognitive Theory of Multimedia Learning developed by Mayer (2009) explains how learners process information presented through words and images. It is based on three assumptions: dual-channel processing, limited processing capacity, and active cognitive processing. These principles suggest that well-organized multimedia materials can facilitate meaningful understanding when visual and verbal information is presented in ways that support rather than overwhelm learners' cognitive processes. Recent research continues to support the importance of instructional design in multimedia learning. Mutlu-Bayraktar (2024) examined how emotional design relates to learning experiences, while Polat (2023) highlighted the influence of instructional video characteristics on cognitive and affective learning outcomes. These studies reinforce the importance of considering learners' cognitive and instructional needs when selecting multimedia resources. The study also draws on the instructional progression described by the Substitution, Augmentation, Modification, and Redefinition (SAMR) Model. This model distinguishes between using technology to replace conventional instructional tools and using it to redesign learning activities. Within the present study, this perspective provides a supplementary explanation of how multimedia may be used for conventional presentations or more interactive instructional experiences. Its conceptual relevance is consistent with Fernández-Sánchez et al. (2022), who emphasized that meaningful technology integration involves instructional planning and changes in classroom practices. Together, these foundations support the examination of multimedia utilization as a teaching practice associated with instructional effectiveness. Multimedia utilization is examined through educational videos, interactive presentations, digital documentaries, and online historical resources. Instructional effectiveness is considered in terms of lesson clarity, student engagement, classroom interaction, and attainment of learning objectives. The study also considers challenges involving resource availability, technical skills, internet connectivity, and time constraints.

Recent research has established the potential contribution of multimedia technologies to instructional delivery, student engagement, and learning outcomes. However, many studies examine digital education broadly, focus on online learning environments, or investigate technology integration across multiple educational disciplines. Although these findings provide important theoretical and empirical evidence, they do not fully explain the relationship between multimedia utilization and teachers' perceived instructional effectiveness in tertiary-level Social Studies instruction. Wohlfart and Wagner (2023) emphasized teachers' roles in technology integration, while Claro et al. (2024) identified continuing concerns regarding the assessment and application of teachers' digital competencies. Msambwa et al. (2024) likewise demonstrated that successful educational technology integration depends on institutional resources and professional preparation. These findings highlight the need for context-specific investigations that consider both teachers' multimedia practices and the challenges affecting instruction. The present study addresses this need by examining multimedia utilization and instructional effectiveness among Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus. It investigates teachers' use of educational videos, interactive presentations, digital documentaries, and online historical resources, together with their perceived instructional effectiveness in lesson clarity, student engagement, classroom interaction, and attainment of learning objectives. The study further examines whether multimedia utilization and reported challenges have statistically significant associations with instructional effectiveness. Its findings may provide a foundation for developing an Action Plan that responds to identified instructional needs, strengthens teachers' technological competencies, and promotes more purposeful integration of multimedia resources.

The study primarily supports Sustainable Development Goal 4 (SDG 4), Quality Education, by examining instructional practices that may contribute to more effective, inclusive, and meaningful learning experiences. Multimedia resources can provide alternative ways of presenting educational content, support classroom interaction, and help teachers respond to different instructional needs. However, their educational benefits depend on appropriate implementation, teacher preparedness, and accessibility. UNESCO (2023) emphasized that the contribution of educational technology to SDG 4 depends on its relevance, equity, effectiveness, and sustainability. This perspective aligns with the present study's examination of multimedia utilization, instructional effectiveness, and challenges involving resources, technological competence, connectivity, and preparation time. The study also has a secondary connection to Sustainable Development Goal 9 (SDG 9), Industry, Innovation and Infrastructure, through its consideration of technological resources and institutional infrastructure supporting teaching and learning. Msambwa et al. (2024) emphasized that adequate technological infrastructure and professional competencies are important conditions for sustainable ICT integration. By identifying the relationships between multimedia utilization, instructional effectiveness, and implementation challenges, the study may support institutional planning, professional development, and evidence-based strategies for improving technology-supported Social Studies instruction.

The study contributes to multidisciplinary sustainability through educational, technological, and institutional dimensions. Educational sustainability involves maintaining instructional quality and strengthening teaching practices that respond to learners' evolving needs. The examination of multimedia utilization and instructional effectiveness may provide evidence for improving Social Studies instruction through appropriate integration of digital resources and continuous professional development. Technological sustainability concerns the effective use and management of available instructional technologies. UNESCO (2023) emphasized that educational institutions should evaluate technology according to its educational value, accessibility, and long-term implications. Accordingly, the present study considers how technological skills, resource availability, internet connectivity, and preparation time may influence multimedia-supported teaching. Institutional sustainability involves developing professional support systems, instructional policies, and technological resources that contribute to continuous educational improvement. Moraes et al. (2025) emphasized that developing teachers' digital competencies requires institutional support, professional learning opportunities, and appropriate technological infrastructure. Similarly, Msambwa et al. (2024) identified coordinated institutional efforts as necessary for effective ICT implementation. The study may benefit Social Studies teachers by identifying opportunities to strengthen multimedia-supported instructional practices. School administrators and curriculum planners may use the findings to inform faculty development, resource allocation, and instructional improvement initiatives. Students may indirectly benefit from improvements in lesson delivery, engagement, and conceptual understanding, while future researchers may use the findings as a basis for additional investigations into multimedia integration. Ultimately, the proposed Action Plan may contribute to sustained improvements in educational practices by encouraging evidence-based decision-making, strengthening professional competencies, and supporting purposeful multimedia integration in tertiary-level Social Studies instruction.

This study aims to determine the relationship between multimedia utilization and instructional effectiveness among Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus during the school year 2026-2027 as a basis for developing an Action Plan. Specifically, the study examines respondents' demographic and professional profiles in terms of age, gender, academic rank, and years of teaching experience. It determines their level of multimedia utilization through educational videos, interactive presentations, digital documentaries,

and online historical resources. It also assesses perceived instructional effectiveness based on clarity of lesson presentation, student engagement, classroom interaction, and attainment of learning objectives. Furthermore, it identifies challenges involving resource availability, technical skills, internet connectivity, and time constraints and examines their associations with instructional effectiveness. Two null hypotheses are tested at the 0.05 level of significance. The first states that there is no statistically significant association between multimedia utilization and instructional effectiveness in Social Studies teaching. The second states that there is no statistically significant association between challenges encountered in multimedia utilization and instructional effectiveness. Based on the results, an Action Plan will be proposed to strengthen multimedia-supported instructional practices and address identified challenges.

2. Material and methods

2.1 Research Design

The study employed a descriptive-correlational research design to determine the levels of multimedia utilization, instructional effectiveness, and challenges encountered among Social Studies teachers. Creswell and Creswell (2023) explained that quantitative research designs provide systematic approaches for examining variables, describing existing conditions, and investigating relationships without necessarily manipulating the research environment. Similarly, Miksza et al. (2023) distinguished descriptive research, which characterizes existing conditions, from correlational research, which investigates associations among variables. The descriptive component assessed multimedia utilization, instructional effectiveness, and implementation challenges. The correlational component examined the strength and direction of associations between multimedia utilization and instructional effectiveness and between reported challenges and instructional effectiveness. This approach was appropriate because the study investigated existing instructional practices without manipulating the variables or establishing causal relationships. The study followed an Input-Process-Output (IPO) model. Inputs included respondents' demographic and professional profiles, multimedia utilization, instructional effectiveness, and reported challenges. The process involved questionnaire preparation and validation, securing institutional permission and informed consent, instrument administration, data organization, and statistical analysis. The expected output was a proposed Action Plan to improve multimedia-supported Social Studies instruction.

2.2 Locale of the Study

The study was conducted at the University of Cebu Lapu-Lapu and Mandaue Campus (UCLM), located in Looc, Mandaue City, Cebu, Philippines. Established in 1994, the institution is part of the University of Cebu system and offers undergraduate and graduate programs in education, business, computer studies, engineering, nursing, criminal justice, hospitality management, and other disciplines. The campus provides an academic environment that incorporates digital learning technologies, multimedia classrooms, computer laboratories, internet connectivity, and learning management systems. Its College of Education includes Social Studies instruction within teacher education and general education courses. The institution was selected because of its accessibility, available instructional technologies, and relevance to the study objectives. The researcher's affiliation with the academic environment also provided a relevant institutional context for examining multimedia utilization and instructional effectiveness among Social Studies teachers.

2.3 Respondents of the Study

The respondents consisted of 50 Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus during the academic year 2026-2027. They were considered appropriate participants because of their direct involvement in Social Studies instruction and their experiences with multimedia-supported teaching. Of the total population, 12 teachers handled first-year classes, 13 handled second-year classes, 12 handled third-year classes, and 13 handled fourth-year classes, representing 24%, 26%, 24%, and 26%, respectively. Their demographic and professional characteristics were examined in terms of age, sex, academic rank, and years of teaching experience. These respondents provided information relevant to assessing multimedia utilization, instructional effectiveness, and challenges encountered in incorporating digital resources into Social Studies instruction.

2.4 Sample and Sampling Procedure

The study employed complete enumeration because the target population consisted of 50 Social Studies teachers. All qualified teachers at the University of Cebu Lapu-Lapu and Mandaue Campus were included in the intended respondent population. Eichhorn (2022) emphasized the importance of selecting sampling approaches appropriate to the study population and research objectives. Similarly, Kalton (2021) explained that the relationship between the target population, sampling design, and data collection procedures is essential to obtaining meaningful survey results. Complete enumeration was appropriate because the population was manageable and directly relevant to the study objectives. Including the entire target population minimized sampling error associated with selecting only a subset of teachers and provided comprehensive information about multimedia integration within the institution.

2.5 Research Instrument

The primary research instrument was an adapted and researcher-modified questionnaire designed to assess multimedia utilization, instructional effectiveness, and challenges encountered in Social Studies teaching. Its conceptual development was informed by Mayer (2021), who explained the cognitive principles underlying multimedia learning, and Mishra and Koehler (2006), whose Technological Pedagogical Content Knowledge Framework emphasizes the integration of technological, pedagogical, and content knowledge in effective instruction. The questionnaire covered respondents' demographic and professional profiles, multimedia utilization, instructional effectiveness, and implementation challenges. Demographic indicators included age, sex, academic rank, and years of teaching experience. Multimedia utilization was assessed through educational videos, interactive presentations, digital documentaries, and online historical resources. Instructional effectiveness was evaluated based on clarity of lesson presentation, student engagement, classroom interaction, and attainment of learning objectives. Implementation challenges included resource availability, technical skills, internet connectivity, and time constraints. The instrument was reviewed and modified to ensure its relevance to tertiary-level Social Studies teaching. Ford and Scandura (2023) emphasized the importance of appropriate questionnaire development, item evaluation, validity assessment, and reliability testing in survey research. Similarly, Fink (2024) discussed the importance of developing clear survey questions and evaluating research instruments to support credible data collection. To establish content validity, the modified questionnaire was submitted to experts in Social Studies education and educational research. Their recommendations were incorporated to improve item clarity, relevance, and suitability. Pilot testing was subsequently conducted among Social Studies teachers with characteristics comparable to the target respondents but who were excluded from the actual study. The pilot-test responses were subjected to reliability analysis using Cronbach's alpha to assess internal consistency. A coefficient of .70 or higher was considered acceptable, while items demonstrating weak item-total correlations or negatively affecting reliability were reviewed and revised before final administration. The questionnaire used a four-point Likert scale. For multimedia utilization and instructional effectiveness, mean scores of 3.26 to 4.00 were interpreted as Strongly Agree, 2.51 to 3.25 as Agree, 1.76 to 2.50 as Disagree, and 1.00 to 1.75 as Strongly Disagree. For implementation challenges, the corresponding interpretations were Highly Affected, Affected, Less Affected, and Not Affected.

2.6 Data Gathering Procedure

Data collection involved preliminary preparation, questionnaire administration, and post-collection processing. During the preliminary stage, the researcher prepared the adapted questionnaire and secured formal approval from the School Director and Academic Head of the General Education Department at the University of Cebu Lapu-Lapu and Mandaue Campus. After obtaining institutional permission, the researcher coordinated with department heads to secure the official list of Social Studies teachers and invited all 50 qualified teachers to participate. Each prospective respondent received an informed consent form explaining the study's objectives, procedures, voluntary participation, and confidentiality measures. The provisions of the Data Privacy Act of 2012 were observed to protect personal information. The questionnaire was distributed through printed copies or an online platform, such as Google Forms, depending on respondents' accessibility and preferences. Clear instructions were provided to ensure proper completion of the four-point Likert-scale items. Eichhorn (2022) emphasized the importance of questionnaire administration procedures that support accurate and consistent survey responses, while Fink (2024) highlighted appropriate survey implementation and response management. Completed printed questionnaires were personally retrieved, while online submissions were monitored electronically. Follow-up communication was conducted when necessary to facilitate the completion and retrieval of responses. Following data collection, the responses were checked for completeness, organized, encoded, and verified for accuracy and consistency. The collected information was subjected to appropriate statistical analyses and interpreted according to the research objectives. Research records were securely stored, with access restricted to the researcher to maintain confidentiality and data integrity.

2.7 Data Analysis Techniques

The collected data were analyzed using frequency counts, percentages, weighted means, standard deviations, and Pearson's product-moment correlation coefficient. Creswell and Creswell (2023) emphasized the importance of selecting statistical procedures appropriate to research objectives and the characteristics of quantitative data. Frequency counts and percentages were used to describe respondents' demographic and professional characteristics, including age, sex, academic rank, and years of teaching experience. These measures also summarized the distribution of responses across the questionnaire indicators. Weighted means were computed to determine the levels of multimedia utilization, perceived instructional effectiveness, and challenges encountered. Responses were interpreted according to the established four-point Likert-scale ranges. Standard deviations were calculated to describe response variability and determine the consistency of respondents' perceptions. Pearson's product-moment correlation coefficient, or Pearson's *r*, was used to determine the strength and direction of the relationship between multimedia utilization and instructional effectiveness. The association between reported challenges and instructional effectiveness was also examined. Miksza et al. (2023) explained that correlational analysis is used to investigate relationships among variables without manipulating the conditions under investigation. Statistical significance was evaluated at the 0.05 level, consistent with the study's null hypotheses.

The results served as the basis for interpreting the relationships among the study variables and developing a proposed Action Plan to strengthen multimedia utilization and instructional effectiveness in Social Studies teaching.

3. Results and Discussion

3.1 Demographic and Professional Profile of Social Studies Teachers

3.1.1 Age Distribution of Respondents

The findings showed that 16 respondents (32.00%) were aged 51 years and above, representing the largest age group. Teachers aged 21-30 accounted for 12 respondents (24.00%), while those aged 31-40 and 41-50 each comprised 11 respondents (22.00%). The distribution indicates that the study included teachers from different age groups, with a slightly higher representation of older faculty members. The findings suggest that respondents may differ in technological familiarity, teaching experience, and professional development needs. However, age alone does not establish differences in multimedia competence or instructional effectiveness. Wohlfart and Wagner (2023) emphasized that teachers' digital competencies develop through professional learning, institutional support, and meaningful technology integration. Similarly, Claro et al. (2024) identified the importance of assessing teachers' technological knowledge and classroom applications rather than relying on demographic characteristics. These findings support professional development programs that address teachers' technological and pedagogical needs across age groups.

3.1.2 Gender Distribution of Respondents

The findings revealed that 28 respondents (56.00%) were female, while 22 respondents (44.00%) were male. Female teachers constituted a slightly larger proportion of the study population, although both groups were represented. The distribution describes the respondents' gender composition without establishing differences in multimedia utilization or instructional effectiveness based on gender. The findings emphasize the importance of equitable access to professional development and instructional technologies. Mishra and Koehler (2006) explained that effective technology integration depends on the combination of technological, pedagogical, and content knowledge. Akram et al. (2022) similarly identified teachers' competencies, perceptions, and access to support as important influences on educational technology integration. These perspectives suggest that technological training should respond to identified instructional needs rather than demographic characteristics alone.

3.1.3 Academic Rank of Social Studies Teachers

The results indicated that Assistant Professors comprised the largest group, with 21 respondents (42.00%), followed by Instructors with 12 respondents (24.00%). Associate Professors accounted for 10 respondents (20.00%), while Professors represented seven respondents (14.00%). Most respondents therefore occupied instructor and assistant professor positions, although higher academic ranks were also represented. The distribution reflects faculty members with different professional roles and experiences. However, academic rank does not necessarily determine teachers' ability to integrate multimedia effectively. Mishra and Koehler (2006) emphasized that successful technology integration requires appropriate technological, pedagogical, and content knowledge. Wohlfart and Wagner (2023) likewise highlighted continuous professional development and institutional support as important conditions for strengthening digital teaching competencies. The findings support faculty development initiatives that remain accessible across academic ranks.

3.1.4 Years of Teaching Experience

The findings showed that 16 respondents (32.00%) had 1-5 years of teaching experience, followed by 15 respondents (30.00%) with 6-10 years. Teachers with 11-15 years of experience comprised 10 respondents (20.00%), while nine respondents (18.00%) had 16 years or more. Overall, 62.00% of the respondents had ten years or less of teaching experience. The distribution suggests that the respondents represented different stages of professional development. Teachers with shorter service may have varying exposure to newer digital tools, while those with longer experience may possess more established instructional practices. Nevertheless, these characteristics were not directly tested as predictors of multimedia utilization. Claro et al. (2024) emphasized that digital competence involves specific technological and pedagogical practices, while Wohlfart and Wagner (2023) identified continuous professional learning as essential to effective technology integration. These findings highlight the value of ongoing training regardless of teaching experience.

3.2 Level of Multimedia Utilization in Social Studies Instruction

3.2.1 Utilization of Educational Videos

Educational videos obtained an aggregate weighted mean of 2.51 and a standard deviation of 1.11, interpreted as High Multimedia Utilization. The highest-rated indicators were using educational videos to present Social Studies lessons and improve students' understanding of complex topics, both with weighted means of 2.58. Integrating documentary videos and regularly using video resources each obtained 2.52. The perceived contribution of educational videos to student engagement received the lowest weighted mean of 2.36, interpreted as Low. The findings indicate that teachers used educational videos primarily to support lesson presentation and explain

complex concepts rather than consistently encourage active student participation. Noetel et al. (2021) found that instructional videos can improve learning in higher education when incorporated into appropriate instructional approaches. Mayer (2021) further explained that multimedia learning depends on the effective organization of visual and verbal information. These findings suggest that educational videos may be more useful when accompanied by guided questioning, classroom discussions, and reflective activities.

3.2.2 Utilization of Interactive Presentations

Interactive presentations obtained an aggregate weighted mean of 2.49 and a standard deviation of 1.13, interpreted as Low Multimedia Utilization. Using interactive PowerPoint presentations and incorporating visuals and animations both received weighted means of 2.60. Simplifying complex lessons obtained 2.58, while enhancing comprehension received 2.42. Designing presentations that encourage student participation and interaction recorded the lowest weighted mean of 2.26. The findings suggest that teachers used presentation software more frequently for organizing information than for facilitating interactive learning activities. Mayer (2021) emphasized that multimedia materials should be designed to support cognitive processing rather than simply combine visual and verbal elements. Similarly, UNESCO (2023) explained that educational technology should support meaningful learning and interaction rather than function as a substitute for effective teaching. These findings indicate that teachers may benefit from strengthening their skills in designing presentations that incorporate discussions, interactive questions, and collaborative learning activities.

3.2.3 Utilization of Digital Documentaries

Digital documentaries recorded an aggregate weighted mean of 2.46 and a standard deviation of 1.13, interpreted as Low Multimedia Utilization. Using documentaries to support inquiry and critical thinking received the highest weighted mean of 2.62, followed by using documentaries as instructional materials at 2.52. Making lessons meaningful and engaging obtained 2.44, while supporting understanding of historical contexts received 2.38. Integrating documentary analysis into classroom discussions recorded the lowest weighted mean of 2.34. The findings indicate that digital documentaries were incorporated into instruction to a limited extent, particularly for activities requiring discussion and analysis. This suggests that teachers may recognize their instructional potential without consistently using them to promote inquiry-based learning. Mayer (2021) explained that multimedia materials support understanding when learners actively organize and integrate information. Noetel et al. (2021) likewise emphasized that video-supported instruction is more beneficial when incorporated into effective learning activities. These findings support the use of documentaries alongside source analysis, reflection questions, and classroom discussions.

3.2.4 Utilization of Online Historical Resources

Online historical resources obtained an aggregate weighted mean of 2.46 and a standard deviation of 1.13, interpreted as Low Multimedia Utilization. The perceived contribution of online materials to instructional quality received the highest weighted mean of 2.64. Encouraging students to explore reliable online sources obtained 2.48, while using online historical resources to supplement lessons received 2.46. Accessing credible websites and digital archives recorded 2.36, and using online materials to update instruction obtained the lowest weighted mean of 2.34. The results suggest that teachers recognized the usefulness of online historical resources but did not consistently incorporate them into their instructional practices. Limited use of credible websites and digital archives may restrict opportunities for inquiry and historical source evaluation. UNESCO (2023) emphasized that educational technologies should be selected according to their relevance, accessibility, and instructional value. Similarly, Claro et al. (2024) identified digital competence as an important consideration in teachers' ability to locate, evaluate, and use technological resources. These findings highlight the need to strengthen digital resource selection and effective integration of online historical materials.

3.2.5 Overall Level of Multimedia Utilization

The overall level of multimedia utilization obtained a grand weighted mean of 2.48 and a standard deviation of 1.13, interpreted as Low. Educational videos received the highest weighted mean of 2.51, followed by interactive presentations at 2.49. Digital documentaries and online historical resources each obtained 2.46. These findings indicate that multimedia use was uneven across the four instructional resources, with educational videos receiving the highest rating. The overall findings suggest that teachers may rely more on familiar multimedia applications than on resources requiring additional preparation or specialized technological knowledge. Akram et al. (2022) identified teachers' competencies, infrastructure, and training as important influences on technology integration. Wohlfart and Wagner (2023) likewise emphasized that meaningful digitalization requires professional development and appropriate pedagogical integration. These findings suggest that increasing multimedia utilization requires targeted support rather than simply encouraging teachers to use technology more frequently.

3.3 Level of Instructional Effectiveness in Social Studies Teaching

3.3.1 Clarity of Lesson Presentation

Clarity of lesson presentation obtained an aggregate weighted mean of 2.52 and a standard deviation of 1.17, interpreted as Effective. Connecting lessons to real-life situations received the highest weighted mean of 2.70,

followed by promoting clear understanding of concepts at 2.56. Explaining lessons using appropriate instructional strategies obtained 2.52, while organizing lessons and simplifying complex topics each received 2.42, interpreted as Less Effective. The findings indicate that teachers generally perceived themselves as effective in communicating Social Studies concepts, particularly through real-life applications. However, organizing information and simplifying complex topics remained areas for improvement. Mayer (2021) explained that effective multimedia design requires clear organization of instructional materials to support comprehension and reduce unnecessary cognitive demands. Similarly, UNESCO (2023) emphasized that technology should complement sound pedagogical practices. These findings support clearer lesson sequencing and the purposeful use of visual instructional materials.

3.3.2 Student Engagement

Student engagement obtained an aggregate weighted mean of 2.49 and a standard deviation of 1.11, interpreted as Less Effective. Encouraging active participation in classroom discussions received the highest weighted mean of 2.78, followed by maintaining student attention at 2.52. Encouraging participation through instructional strategies and sustaining students' interest each obtained 2.48. Increasing students' motivation to learn received the lowest weighted mean of 2.20. The findings indicate that teachers were more successful in encouraging classroom discussions than in sustaining students' motivation. This suggests that participation does not necessarily indicate consistent interest or active engagement throughout the learning process. Akpen et al. (2024) emphasized that student engagement in digitally supported learning depends on instructional design and learning conditions. Similarly, Akram et al. (2022) identified appropriate technology integration as a potential means of creating interactive learning experiences. These findings support the use of multimedia alongside collaborative tasks, guided discussions, and activities connected to students' experiences.

3.3.3 Classroom Interaction

Classroom interaction recorded an aggregate weighted mean of 2.53 and a standard deviation of 1.09, interpreted as Effective. Allowing students to share ideas freely received the highest weighted mean of 2.74. Encouraging open discussions obtained 2.52, while promoting critical thinking through interaction received 2.50. Facilitating meaningful interaction among students obtained 2.48, and promoting collaborative learning received the lowest weighted mean of 2.40. The results suggest that teachers generally encouraged classroom discussion and the expression of ideas, although structured collaborative learning received comparatively lower ratings. Akpen et al. (2024) identified engagement and participation as important dimensions of digitally supported learning. Similarly, UNESCO (2023) emphasized the importance of preserving human interaction and meaningful learning experiences when integrating educational technologies. These findings suggest that multimedia-supported group investigations and collaborative activities may strengthen classroom interaction.

3.3.4 Attainment of Learning Objectives

Attainment of learning objectives obtained an aggregate weighted mean of 2.65 and a standard deviation of 1.13, interpreted as Effective. Regularly assessing whether students achieved learning objectives received the highest weighted mean of 2.80. Achieving intended objectives and meeting expected competencies each obtained 2.68. Using instructional strategies that support learning outcomes received 2.56, while students' demonstrated understanding after instruction obtained the lowest weighted mean of 2.52. The findings indicate that teachers generally perceived their instructional and assessment practices as effective in supporting intended learning outcomes. However, the comparatively lower rating for demonstrated understanding suggests the need for continued assessment of student comprehension. Mayer (2021) emphasized that well-designed multimedia instruction can facilitate meaningful learning when materials align with cognitive processes. Noetel et al. (2021) similarly found that instructional videos can improve learning outcomes in higher education. These findings support integrating multimedia resources with formative assessments and instructional activities aligned with learning objectives.

3.3.5 Overall Level of Instructional Effectiveness

Instructional effectiveness obtained an overall grand weighted mean of 2.55 and a standard deviation of 1.13, interpreted as Effective. Attainment of learning objectives received the highest weighted mean of 2.65, followed by classroom interaction at 2.53 and clarity of lesson presentation at 2.52. Student engagement obtained the lowest weighted mean of 2.49, interpreted as Less Effective. The results indicate that respondents generally perceived their instructional practices as effective, particularly in achieving learning objectives and encouraging classroom interaction. However, student engagement remained a comparatively weaker dimension. Akpen et al. (2024) emphasized that student participation and engagement are important considerations in evaluating digitally supported learning environments. Similarly, UNESCO (2023) highlighted the need to assess educational technology according to its actual instructional value. These findings suggest that existing instructional practices may be strengthened through learner-centered activities that improve motivation and participation.

3.4 Challenges Encountered in Multimedia Integration

3.4.1 Availability of Multimedia Resources

Resource availability obtained an aggregate weighted mean of 2.53 and a standard deviation of 1.13, interpreted as Challenged. The indicator concerning sufficient institutional instructional technology, designated as reverse-scored, recorded the highest weighted mean of 2.74. Limitations in multimedia resources received 2.54, while inadequate equipment affecting instructional effectiveness obtained 2.50. Improvising instructional materials due to limited resources received the lowest weighted mean of 2.32. The findings indicate that the availability of multimedia equipment and instructional resources presented challenges to Social Studies teachers. Limited resources may restrict teachers' opportunities to integrate different digital materials into classroom instruction. Msambwa et al. (2024) identified technological infrastructure, accessibility, and institutional assistance as important conditions for effective ICT integration. Akram et al. (2022) similarly emphasized inadequate infrastructure and limited technological resources as obstacles to teachers' instructional practices. These findings support improving access to multimedia equipment and institutional assistance.

3.4.2 Technical Skills in Multimedia Integration

Technical skills obtained an aggregate weighted mean of 2.54 and a standard deviation of 1.09, interpreted as Challenged. Confidence in using multimedia tools, designated as reverse-scored, received the highest weighted mean of 2.64. The influence of technical skills on multimedia utilization obtained 2.62, followed by the need for additional training at 2.56. Difficulty operating certain digital tools received the lowest weighted mean of 2.34. The findings suggest that teachers experienced challenges involving technological competence and identified a need for further professional development. Msambwa et al. (2024) emphasized that successful ICT integration requires teachers to develop practical technological skills alongside pedagogical knowledge. Claro et al. (2024) likewise identified the importance of teachers' digital competencies in instructional planning and technology-supported teaching. These findings suggest that professional development should emphasize practical multimedia applications and their alignment with instructional objectives.

3.4.3 Internet Connectivity

Internet connectivity obtained an aggregate weighted mean of 2.46 and a standard deviation of 1.17, interpreted as Less Challenged. Connectivity limitations affecting multimedia integration received the highest weighted mean of 2.58. The influence of internet access on online resource utilization obtained 2.46, while stable connectivity, designated as reverse-scored, received 2.44. Interruptions while using digital platforms obtained the lowest weighted mean of 2.36. The results suggest that internet connectivity was a comparatively less serious concern than other challenges, although some limitations remained evident. Unstable connectivity may affect access to online historical materials, digital archives, and interactive resources. Akram et al. (2022) identified inadequate internet access and technological infrastructure as barriers to effective technology integration. Similarly, UNESCO (2023) emphasized the importance of technological accessibility and reliable infrastructure in supporting educational quality. These findings suggest that improving connectivity and preparing accessible offline resources may help reduce interruptions during instruction.

3.4.4 Time Constraints in Multimedia Preparation and Instruction

Time constraints obtained an aggregate weighted mean of 2.60 and a standard deviation of 1.13, interpreted as Challenged. Preparing multimedia materials received the highest weighted mean of 2.74. Having sufficient preparation time, designated as reverse-scored, obtained 2.66, while time constraints affecting instructional quality received 2.62. Workload limiting multimedia utilization obtained the lowest weighted mean of 2.36. The findings indicate that time constraints were the most prominent challenge among the four dimensions examined. Preparing instructional videos, presentations, documentary materials, and online historical resources may require additional planning and technical preparation. Msambwa et al. (2024) emphasized the importance of institutional support, professional development, and appropriate planning for technology integration. Similarly, Wohlfart and Wagner (2023) identified organizational conditions and teacher preparation as important influences on digital instructional practices. These findings suggest that shared instructional resources and coordinated faculty support may help reduce preparation-related difficulties.

3.4.5 Overall Level of Challenges in Multimedia Utilization

The overall level of challenges obtained a grand weighted mean of 2.53 and a standard deviation of 1.13, interpreted as Challenged. Time constraints received the highest weighted mean of 2.60, followed by technical skills at 2.54 and resource availability at 2.53. Internet connectivity obtained the lowest weighted mean of 2.46, interpreted as Less Challenged. These findings indicate that preparation time, technological competencies, and instructional resources were the principal difficulties reported by respondents. The findings suggest that multimedia integration challenges extend beyond the availability of digital technology and include instructional preparation and teachers' professional competencies. Msambwa et al. (2024) emphasized that effective ICT integration requires adequate infrastructure, practical skills development, and institutional participation. Akram et al. (2022) similarly highlighted the importance of teacher readiness, technological access, and training. These

findings support coordinated initiatives that improve multimedia resources, strengthen technological competencies, and provide practical instructional assistance.

3.5 Relationships Between Multimedia Utilization, Challenges, and Instructional Effectiveness

3.5.1 Relationship Between Multimedia Utilization and Instructional Effectiveness

Pearson's product-moment correlation analysis revealed a correlation coefficient of $r = 0.216$ between multimedia utilization and instructional effectiveness, indicating a weak positive relationship. The corresponding p-value was 0.132, exceeding the 0.05 level of significance. Therefore, the null hypothesis was not rejected. The findings indicate that no statistically significant association was established between multimedia utilization and perceived instructional effectiveness among the respondents. The result suggests that greater multimedia utilization was not significantly associated with higher perceived instructional effectiveness in this study. This does not establish that multimedia is ineffective, but indicates that the reported relationship was insufficient to reject the null hypothesis. Mishra and Koehler (2006) explained that effective technology integration depends on the interaction of technological, pedagogical, and content knowledge rather than technological use alone. Wohlfart and Wagner (2023) similarly emphasized the importance of teachers' digital competencies and instructional contexts. Furthermore, UNESCO (2023) cautioned that educational technologies should be assessed according to demonstrated learning benefits rather than their presence in classrooms. These findings suggest that the educational value of multimedia may depend on how appropriately teachers integrate resources into instructional practices.

3.5.2 Relationship Between Multimedia Challenges and Instructional Effectiveness

The correlation analysis revealed a Pearson correlation coefficient of $r = -0.123$ between reported multimedia integration challenges and instructional effectiveness, indicating a negligible negative relationship. The corresponding p-value was 0.397, exceeding the 0.05 significance level. Consequently, the null hypothesis was not rejected. The findings indicate that no statistically significant association was established between multimedia-related challenges and perceived instructional effectiveness. The result suggests that the reported challenges were not significantly associated with differences in instructional effectiveness among the respondents. Although teachers experienced difficulties involving resources, technical skills, connectivity, and preparation time, these challenges were not statistically associated with instructional effectiveness in the analysis. Msambwa et al. (2024) emphasized that successful technology integration depends on interconnected factors involving teacher competence, infrastructure, and institutional support. Similarly, Akram et al. (2022) identified teachers' perceptions, technical preparation, and instructional conditions as important influences on technology use. These findings suggest that multimedia challenges should be addressed as part of broader instructional improvement efforts without assuming that they directly determine teaching effectiveness.

4. Conclusion & Recommendations

The study concluded that multimedia utilization among Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus was generally low, with educational videos being the most frequently used resource, while interactive presentations, digital documentaries, and online historical resources were utilized to a lesser extent. Despite limited multimedia integration, teachers generally demonstrated effective instructional practices, particularly in attaining learning objectives, although student engagement remained comparatively less effective. Time constraints emerged as the primary challenge, followed by technical skills and resource availability, while internet connectivity was the least challenging factor. Furthermore, no statistically significant relationships were established between multimedia utilization and instructional effectiveness or between reported challenges and instructional effectiveness. These findings provided the basis for developing Project MILES (Multimedia Integration for Learning Enhancement in Social Studies) to strengthen teachers' multimedia competencies and support instructional improvement.

The University of Cebu Lapu-Lapu and Mandaue Campus should adopt Project MILES (Multimedia Integration for Learning Enhancement in Social Studies) as a proposed intervention program to strengthen teachers' multimedia competencies, address challenges encountered in technology integration, and improve the utilization of multimedia resources in Social Studies instruction. The program should be implemented and regularly evaluated to determine its effectiveness and support its long-term sustainability.

The study was limited to 50 Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus during the academic year 2026-2027. It employed a descriptive-correlational research design and relied on respondents' self-reported assessments of multimedia utilization, instructional effectiveness, and challenges encountered. Consequently, the findings describe the conditions and statistical associations within the institution and do not establish causal relationships or necessarily represent Social Studies teachers in other educational settings.

5. Compliance with ethical standards

The study observed ethical considerations in conducting research among Social Studies teachers at the University of Cebu Lapu-Lapu and Mandaue Campus. Institutional permission was secured before data collection, and prospective respondents were informed of the study's purpose, procedures, voluntary participation, and confidentiality measures. Personal information was handled in accordance with the Data Privacy Act of 2012. Collected data were securely stored, with access restricted to the researcher to maintain confidentiality and data integrity.

REFERENCES

- Akpen, C. N., Asaolu, S., Atobatele, S., Okagbue, H., & Sampson, S. (2024). Impact of online learning on student's performance and engagement: A systematic review. *Discover Education*, 3, Article 205. <https://doi.org/10.1007/s44217-024-00253-0>
- Akram, H., Abdelrady, A. H., Al-Adwan, A. S., & Ramzan, M. (2022). Teachers' perceptions of technology integration in teaching-learning practices: A systematic review. *Frontiers in Psychology*, 13, Article 920317. <https://doi.org/10.3389/fpsyg.2022.920317>
- Claro, M., Castro-Grau, C., Ochoa, J. M., Hinostroza, J. E., & Cabello, P. (2024). Systematic review of quantitative research on digital competences of in-service school teachers. *Computers & Education*, 215, Article 105030. <https://doi.org/10.1016/j.compedu.2024.105030>
- Conrad, M., Kablitz, D., & Schumann, S. (2024). Learning effectiveness of immersive virtual reality in education and training: A systematic review of findings. *Computers & Education: X Reality*, Article 100053. <https://doi.org/10.1016/j.cexr.2024.100053>
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications. <https://us.sagepub.com/en-us/nam/research-design/book270550>
- Department of Education. (2017, August 11). Department Order No. 42, s. 2017: National adoption and implementation of the Philippine Professional Standards for Teachers. <https://www.deped.gov.ph/2017/08/11/do-42-s-2017-national-adoption-and-implementation-of-the-philippine-professional-standards-for-teachers/>
- Eichhorn, J. (2022). *Survey research and sampling*. SAGE Publications. <https://www.sagepub.com/shop/buy-a-book/survey-research-and-sampling-1-257485>
- Fernández-Sánchez, M. R., Garrido-Arroyo, M. D. C., & Porras-Masero, I. (2022). Curricular integration of digital technologies in teaching processes. *Frontiers in Education*, 7, Article 1005499. <https://doi.org/10.3389/feduc.2022.1005499>
- Fink, A. (2024). *How to conduct surveys: A step-by-step guide* (7th ed.). SAGE Publications. <https://www.sagepub.com/shop/buy-a-book/how-to-conduct-surveys-7-279527>
- Ford, L. R., & Scandura, T. A. (Eds.). (2023). *The SAGE handbook of survey development and application*. SAGE Publications. <https://www.sagepub.com/shop/buy-a-book/the-sage-handbook-of-survey-development-and-application-1-276575>
- Fuentes, R. P., & LaBad, R. (2025). Impact of digital learning tools on student engagement and academic achievement in higher education: A systematic review. *Zenodo*. <https://doi.org/10.5281/zenodo.16430142>
- Hassan, R. H. (2023). Educational vlogs: A systematic review. *SAGE Open*, 13(1). <https://doi.org/10.1177/21582440231152403>
- Kalton, G. (2021). *Introduction to survey sampling* (2nd ed.). SAGE Publications. <https://doi.org/10.4135/9781071909812>
- Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511811678>
- Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge University Press. <https://doi.org/10.1017/9781316941355>
- Miksza, P., Shaw, J. T., Richerme, L. K., Hash, P. M., & Hodges, D. A. (2023). *Music education research: An introduction*. Oxford University Press. <https://doi.org/10.1093/oso/9780197639757.001.0001>
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Moraes, R., Santos, C., & Pedro, N. (2025). Teacher digital competences in online higher education: A systematic literature review. *Ubiquity Proceedings*, Article 53. <https://doi.org/10.5334/uproc.221>
- Msambwa, M. M., Daniel, K., & Lianyu, C. (2024). Integration of information and communication technology in secondary education for better learning: A systematic literature review. *Social Sciences & Humanities Open*, 10, Article 101203. <https://doi.org/10.1016/j.ssaho.2024.101203>

- Mutlu-Bayraktar, D. (2024). A systematic review of emotional design research in multimedia learning. *Education and Information Technologies*, 29, 24603–24626. <https://doi.org/10.1007/s10639-024-12823-8>
- Noetel, M., Griffith, S., Delaney, O., Sanders, T., Parker, P., del Pozo Cruz, B., & Lonsdale, C. (2021). Video improves learning in higher education: A systematic review. *Review of Educational Research*, 91(2), 204–236. <https://doi.org/10.3102/0034654321990713>
- Polat, H. (2023). Instructors' presence in instructional videos: A systematic review. *Education and Information Technologies*, 28, 8537–8569. <https://doi.org/10.1007/s10639-022-11532-4>
- UNESCO. (2023). Global education monitoring report 2023: Technology in education - A tool on whose terms? <https://www.unesco.org/gem-report/en/publication/technology>
- Verma, N., Getenet, S., Dann, C., & Shaik, T. (2023). Characteristics of engaging teaching videos in higher education: A systematic literature review of teachers' behaviours and movements in video conferencing. *Research and Practice in Technology Enhanced Learning*, 18, Article 040. <https://doi.org/10.58459/rptel.2023.18040>
- Wohlfart, O., & Wagner, I. (2023). Teachers' role in digitalizing education: An umbrella review. *Educational Technology Research and Development*, 71, 339–365. <https://doi.org/10.1007/s11423-022-10166-0>