

WHAT DO EDUCATORS NEED TO THRIVE WITH MULTIMEDIA IN THE CLASSROOM?

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ABSTRACT

This paper explores the essential needs of educators to effectively integrate multimedia into the classroom, framed within the ISTE Coaching Standards (C Standards). With digital tools becoming increasingly prevalent in education, understanding how educators can thrive in multimedia-rich environments is crucial for both their professional success and student engagement. Drawing on a comprehensive review of existing literature, this study identifies key factors that influence the effective use of multimedia: access to ongoing professional development, opportunities for collaboration with peers, and a supportive school culture that encourages innovation and risk-taking.

The findings underscore the importance of educators receiving targeted training in both digital pedagogy and multimedia design. This dual focus equips educators not only with the technical skills needed to use multimedia tools but also with the pedagogical understanding of how to apply these tools to enhance learning outcomes. Furthermore, the paper examines several challenges that educators commonly face in integrating multimedia, including insufficient access to hardware, difficulties keeping up with rapidly changing technologies, and gaps in specialized professional development. These challenges are often compounded by a lack of systemic support within schools, which can limit educators' ability to innovate and utilize digital tools effectively.

In addition to highlighting these challenges, the paper also outlines best practices for multimedia integration, including strategies for continuous professional growth, the importance of peer collaboration, and the role of school leadership in creating a technology-friendly culture. The study concludes by offering recommendations for how educators can better meet their needs for multimedia integration, emphasizing the importance of a holistic approach that combines training, support, and access to resources. Ultimately, the paper argues that fostering an environment where educators can thrive with multimedia tools is essential for creating dynamic, engaging, and effective learning experiences for students.

INTRODUCTION



Industries have moved from 1.0 to 5.0, yet most of our classrooms worldwide are traditional. However, there is hope! From the use of radio, videotapes, calculators, public computers to ipads, we're here!

Research questions:

This paper seeks to explore "What do educators need to thrive with multimedia in the classroom?"

Importance of multimedia in education:

Multimedia enhances education by engaging students through a combination of text, images, audio, and video, catering to diverse learning styles and making complex concepts more accessible. It transforms passive learning into an interactive experience, improving comprehension and retention. Multimedia also fosters the development of critical skills like information literacy, technical proficiency, and creativity, preparing students for the digital age. By incorporating multimedia, educators can create dynamic, inclusive, and student-centered learning environments that promote active participation and real-world problem-solving.

We see a significant pedagogical shift with the use of technology in the past few years. How do trans generational educators keep up with that? As technology evolves, the integration of multimedia into the classroom has become essential for engaging students and fostering deeper understanding. Despite the potential benefits, available resources, many educators feel unprepared to effectively utilize multimedia tools, leading to inconsistent implementation across classrooms.

The following section will review existing literature on the role of educators in implementing multimedia, their challenges and best practices and how this builds our understanding of the ISTE C standards (International Society for Technology in Education Coaching Standards).

LITERATURE REVIEW

The role of educators in implementing multimedia:

Classroom teachers can address the challenge of teaching students with diverse backgrounds and abilities while enhancing their technology skills by using student-made digital multimedia projects. These projects integrate necessary technology skills with academic content, aligning with rigorous standards and enhancing student achievement on high-stakes tests. By creating multimedia projects, students express their knowledge authentically and engage in a process that deepens their understanding. This approach allows students to construct knowledge collaboratively and prepare their work for a wider audience, enriching their learning experience. Figure 1 shows the one of the projects created by students. ([Steelman et al. 2005](#)).

Figure 1

Multimedia project created by Tahatai Coast School, Papamoa, New Zealand.

Zero Waste is a cooperative project created by students attending the Tahatai Coast School in Papamoa, New Zealand. A 2001 finalist, the project was created under the direction of Andrea Sage. The software used to create the project included Macromedia Dreamweaver, Fireworks, Apples QuickTime, and Kid Pix.

Teacher's Name: Andrea Sage

Project Name: Zero Waster

School & Location: Centennial Tahatai Coast School, New Zealand

Age of Students: 7-10 years

The learning outcomes for the children who participated in the project were

1. To develop their knowledge and understanding of the issues surrounding the preservation of our natural resources through online and hands-on learning.
2. To develop a presentation which could persuade people both locally and internationally of the importance of preserving our planet.
3. To create an eye-catching, interactive Web site which would appeal to as large an audience as possible.
4. For the children to consider a means of advertising their Web site to ensure that their message got through to as wide an audience as possible.

Many activities were included in the Zero Waste project. Students made costumes for plays from recycled materials. They used the costumes created in a school-wide assembly focusing on zero waste for the school. Students created digital artwork and an interactive story about the fate of the planet. The students read a story entitled "Stig of the Dump" and then created a slide show to tell younger students about the book. They also designed a scientific experiment to explore what Stig could have worn from the dump in order to keep warm. This site was divided into a kids' section and an educators' section. The kids' section focused on the activities used to promote awareness of the global issue of taking responsibility for our planet. The educators' section included the philosophy, overview, timelines, lesson plans, and newsletters.



This project, out of many other examples, confirms the role of an educator in using multimedia and the impact it can create for as young as elementary division.

Challenges educators face with multimedia integration:

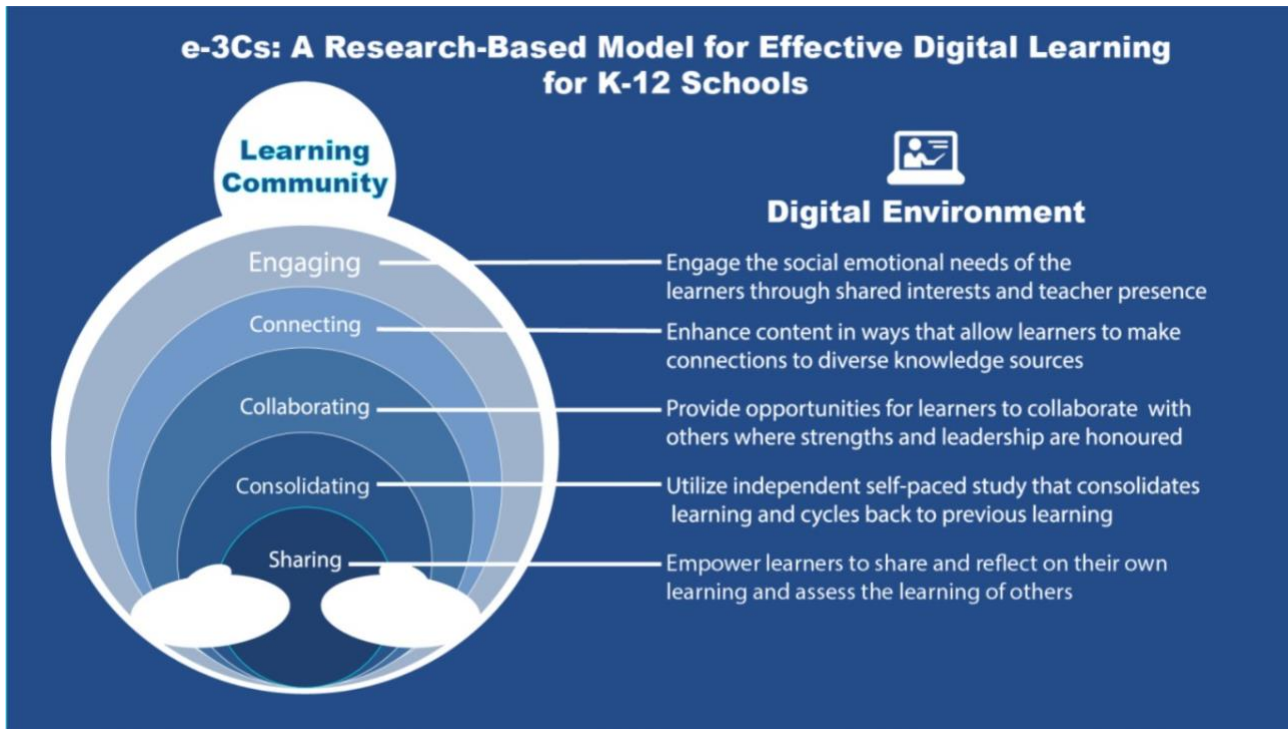
- Baby Boomer-teachers (born 1946-1964) and Generation X-teachers (born 1965-1981) stated the reasons for their problems in adapting to the digital age as follows: lack of hardware at schools, difficulties in following the technology, and using smart boards, preparing programs, and animations. ([Gunduzalp,2021](#)).
- Participants identified key criteria for preparing and using educational materials, including fitness for purpose, appropriateness for students' levels, simplicity, and clarity. Literature review reinforced that alignment with educational objectives is crucial. It emphasized the importance of instructional material suitability. However, participants faced challenges in selecting appropriate materials and sourcing equipment due to high costs. This financial barrier to obtaining suitable instructional materials was noted as a common issue in the studies reviewed. ([Reigeluth et al., 2017](#))
- A challenge around educators is the need for professional development opportunities that equip faculty with the skills necessary for inclusive pedagogy. This includes training in course design (e.g., multimedia use and structure), building strong professor-student rapport, fostering classroom community, and exhibiting high-quality teaching behaviors that are adaptable to various course delivery formats. ([Christina et al., 2024](#))
- Over-Reliance on Technology: Too much dependence on multimedia can reduce teacher-student interaction, limiting creativity and engagement. Loss of Speaking Opportunities: Multimedia can shift focus to passive learning, reducing chances for students to practice speaking and engage in communication. Hindered Critical Thinking: Overuse of multimedia can limit real-time feedback and spontaneous questioning, restricting students' problem-solving and thinking development. Shift from Abstract to Imaginal Thinking: Excessive reliance on visual and auditory content may limit students' ability to think abstractly and critically, weakening reading and cognitive skills. ([Xu, 2010](#))

Best practices of educators with multimedia integration:

- Figure 2 illustrates how a learning community ensures that teacher presence and appropriate activities are the centerpiece of such a virtual learning environment. ([Figg et al., 2020](#))

Figure 2

e-3Cs: A Research-Based Model for Effective Digital Learning for K-12 Schools



- A study looked at how different online course setups affected student performance. They tested three conditions: (1) students who couldn't see their classmates, (2) students who couldn't see themselves but could see classmates, and (3) students who could see both themselves and their classmates. The students who could see both themselves and others did the best on a quiz, while those who could see neither did the worst. The researchers suggested that seeing themselves and their classmates helped students feel more aware and connected, which improved their accountability and performance. ([Austin et al., 2021](#))
- In one study, students at a minority-serving institution showed improved learning and engagement in online or hybrid classes when the instructor used YouTube videos. Another study found that using educational videos during a lecture boosted student motivation and increased knowledge, especially when videos were shown in the middle of the lecture, compared to lectures with no video or videos shown only at the start. ([Ljubojevic et al., 2014](#))
- Promoting culturally responsive teaching involves creating learning activities that support both international students and those from racially diverse backgrounds, helping them navigate various learning contexts. By incorporating these strategies, educators can provide opportunities for diverse students to share their experiences, connect with new ideas, and build on existing knowledge. ([Kim et al., 2024](#))

- Many students reported that the varied interactions designed by instructors in online environments boosted their academic engagement and performance. Activities like peer tutoring and student-led facilitation sparked their interest and encouraged active participation in learning. One Arts and Sciences student shared that the instructor's use of peer tutoring and discussion facilitation helped them engage more and better understand the course material. A student from Engineering echoed similar sentiments. ([Kim et al., 2024](#))

- Key Strategies for Effective Use of Multimedia in English Teaching

Teachers Remain Central: Multimedia should assist, not replace, the teacher's role in leading discussions and engaging students. Use Blackboard Alongside Technology: The computer screen can't replace the blackboard for real-time adjustments and student communication. Encourage Active Thinking: PowerPoint and multimedia should support, not replace, student thinking and participation in class. Balance with Traditional Tools: Integrate multimedia with traditional teaching tools like recorders and blackboards for a more effective approach. Avoid Overuse of Multimedia: Too much multimedia can lead to passive learning; it should be used selectively to enhance, not dominate, the lesson. In short, multimedia should complement traditional methods to create an interactive, balanced learning environment. ([Xu, 2010](#))

- Data literacy for teaching is the ability to transform information into actionable instructional knowledge and practices by collecting, analyzing, and interpreting all types of data (assessment, school climate, behavioral, snapshot, longitudinal, moment-to-moment, and so on) to help determine instructional steps. It combines an understanding of data with standards, disciplinary knowledge and practices, curricular knowledge, pedagogical content knowledge, and an understanding of how children learn. ([Datnow & Hubbard 2015](#))
- The article discusses the shift in digital literacy frameworks from focusing on basic digital skills to emphasizing the critical understanding of digital citizenship. It argues that education systems must equip teachers to model and instill these critical literacies in students. To achieve this, teacher education policies must explicitly address digital citizenship, ensuring that teacher training programs connect democratic values with digital technologies. The article also examines the current state of digital competencies in teacher education frameworks (TCFs) and highlights the need for further changes. It offers recommendations for policymakers and educational leaders to enhance the role of digital citizenship in teacher training, particularly in compulsory education. ([Onrubia et al., 2022](#))

The ISTE C Standards: Overview and Relevance



“The ISTE Standards are a framework that guides educators, leaders and coaches in using technology to create high-impact, sustainable, scalable and equitable learning experiences. They have been adopted by all U.S. states and many countries worldwide.” [\(ISTE, n.d\)](#)

The coaches' section of the ISTE Standards illustrates the characteristics, activities, philosophies and mindsets of today's instructional technology coaches. Because coaches have a unique role as capacity builders and implementation experts, these standards guide coaches in ensuring that learning with technology is high impact, sustainable, scalable and equitable for all. This section also helps define the role of the coach and show how that role relates to the roles of students, educators and education leaders.

METHODOLOGY

- **Comprehensive Search:** Conducted a broad search in the UD library database which are peer-reviewed using relevant keywords and phrases. Peer-reviewed sources are generally considered to be more credible, reliable, and rigorous in terms of their methodology and findings.
- **Categorization:** Developed a table of content and categorized each content using relevant keywords or phrases. Employed targeted keywords related to my research topic.
- **Critical Evaluation:** Assessed the quality of each source based on abstract and relevance to my research question. I prioritized more recent studies that reflect the current state of research. Educational practices, technologies, and trends evolve rapidly, so including recent studies ensures that your paper is grounded in the latest academic discourse.
- **Diversity of Perspectives:** It's important to include a variety of perspectives to give a well-rounded view of the topic. This research includes studies from different educational contexts, geographical regions, or academic disciplines.



The goal is to ensure that the literature I review offers a solid basis for understanding key concepts, trends, and findings around research.

FINDINGS

Key Indicators (ISTE-C)

Best Practices

Standard 1: **Change Agent** inspire educators and leaders to use technology to create equitable and ongoing access to meaningful learning.

Teacher presence and activity structure are key in a learning environment, with teachers guiding technology integration to enhance, not replace, teaching for better student outcomes.

Standard 2: **Connected Learner** model the Student and Educator standards and identify ways to improve their coaching practice.

Video content and peer interaction boost engagement by using multimedia to enhance curriculum delivery and student participation. Peer-led activities promote student-driven learning and critical thinking, supported by tools like collaborative platforms. Multimedia should complement active student thinking, fostering a dynamic curriculum that encourages critical thinking, problem-solving, and interaction.

Standard 3: **Collaborators** establish productive relationships with educators to improve instructional practice and learning outcomes.

Encouraging peer tutoring and student-led facilitation fosters a collaborative learning environment, where students actively engage with technology and social learning. Multimedia enhances this by offering platforms for communication, discussion, and peer interaction.

Standard 4: **Learning Designer** model and support educators to design learning experiences and environments that meet the needs and interests of all students.

Incorporating culturally responsive strategies with multimedia helps educators refine their practices, making teaching more inclusive and engaging for diverse learners.

Standard 5: **Professional Learning Facilitator** plan, provide and evaluate the impact of professional learning for educators and leaders on the use of technology to advance teaching and learning.

Professional development is essential for educators to effectively use technology for diverse learners. Teachers must refine their use of multimedia and stay engaged in discussions to enhance their practice. Integrating multimedia with traditional tools supports flexible, hybrid learning environments that cater to various learning styles.

Standard 6: **Data-Driven Decision Maker** model and support the use of qualitative and quantitative data to inform their own instruction and professional learning.

Educators use data literacy to collect, analyze, and interpret data (e.g., assessments, behavior) to inform instruction and make evidence-based decisions that enhance student learning outcomes.

Standard 7: **Digital Citizenship Advocate** model digital citizenship and support educators and students in recognizing the responsibilities and opportunities inherent in living in a digital world.

Teachers must reflect on and assess the effectiveness of their technology use, balancing multimedia integration to enhance learning without overwhelming it. This includes promoting responsible digital citizenship by integrating digital competencies into teacher education, enabling educators to model ethical behavior and foster a culture of responsible digital use in and out of the classroom.

CONCLUSION

Addressing Barriers to Effective Multimedia Use



Overcoming challenges such as **lack of training**, **limited access** to technology, and **resistance** to change, while balancing tech reliance and ensuring sufficient time for implementation. Educators must also tackle issues like low student **engagement**, **digital citizenship** concerns, and inadequate **content** to create meaningful, accessible learning experiences.

Best Practices



To foster effective learning, educators should ensure strong **teacher presence** while integrating multimedia to enhance peer interaction, collaborative learning, and critical thinking. By embracing **culturally responsive teaching**, promoting active student participation, and utilizing **data literacy**, teachers can guide students in a hybrid learning environment that supports continuous reflection and professional development, all while modeling **responsible digital citizenship**.

Recommendations for professional development



Professional development for educators should focus on effectively **integrating multimedia tools** to enhance teaching and promote digital citizenship. Training should equip teachers with strategies for culturally responsive teaching, data literacy, and using technology to support diverse learners, while encouraging reflection and leadership in tech use. Ongoing opportunities for peer collaboration and self-assessment will help educators stay updated on new tools and continuously improve their practice.

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