Journal of Literacy and Technology
Volume 26, Number 3: Winter 2025
ISSN: 1535-0975

Do Technology and Social Media Help or Hinder Middle Grade and Secondary Students' Literacy Skills?: Teachers' Perceptions

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Abstract

School districts across the United States have increasingly advocated for incorporating technology into daily instruction and assessment. College of Education faculty at a university in the Southeast recently noticed their graduate students expressing contradictory opinions and perspectives regarding the impact of technology and social media on their students' literacy skills. These professors developed and used a questionnaire to understand teachers' perceptions regarding the impact of technology and social media on their students' literacy skill development. Teachers reported that technology helped students develop literacy skills, allowing for differentiation, choice, and creativity. However, technology also hindered students' ability to develop essential writing skills and critical thinking, including their ability to evaluate sources. Researchers suggest various professional development programs that focus on the strategic and systematic use of these tools in the classroom, including an emphasis on students' development of critical thinking, metacognitive skills, and social-emotional learning.

Keywords: Critical thinking skills, differentiation, reading, social media, source evaluation, technology, writing.

Introduction

The 21st century has underscored the need to increase the use of technology in classrooms to develop functional, digitally literate citizens for our global society. Decades of research suggest that technology can keep up with the changing needs of students because it is an ongoing, changing entity that continuously enhances an individual's ability to search for, obtain, and produce information (Leu & Kinzer, 2000; Leu et al., 2004; Leu et al., 2017). Often referred to as New

Literacies, "reading, reading instruction, and more broadly conceived notions of literacy and literacy instruction are being defined by change in even more profound ways as new technologies require new literacies" (Leu et al., 2004, p. 1570).

School districts across the United States have increasingly advocated for incorporating technology into the teaching, learning, and assessment processes. This, in turn, prompted public school systems to incorporate computers, Chromebooks, iPads, or other technology into classrooms that students could access individually.

This increase in technology in public education settings accelerated dramatically during the COVID-19 pandemic, when E-learning, the use of technology and the Internet (Sakkir et al., 2021), became essential to attempts to provide remote education to all students. However, this action did not yield the hoped-for results. Fahle et al. (2024) reported that by the spring of 2022, when states returned to regular testing, "the average student in grades 3 through 8 had lost the equivalent of half a grade level in math achievement and a third of a grade level in reading achievement" (p. 2). A year later, the authors found that students, on average, had barely recovered one-third of what they had lost.

As professors in a college of education in a southeastern state, we became aware of this situation during discussions with our graduate students in our virtual meetings and their digital literacy assignments. We repeatedly heard and read contradictory opinions and perspectives from teachers on the impact of technology and social media on their students' literacy skills. This information and the increase in the use of instructional technology during the COVID-19 pandemic prompted us to conduct the present study with our graduate students, nearly all of whom are active teachers working in urban, suburban, and rural areas. In this way, we aimed to gain a deeper understanding of the teachers' perceptions, practices, and recommendations regarding technology and the development of literacy skills.

We sought to answer the following questions:

1. What are the teachers' perceptions of the impact of technology and social media on their students' literacy skills? In their opinion, what specific students' literacy skills are hindered or enhanced by technology and social media?
2. What are the teachers' concerns about using technology and social media in the classroom, and what do they recommend?

Effects of Technology and Social Media in the Classroom

In this study, we refer to technology as the use of computers, laptops, tablets, cellphones, or any other technological device in classrooms for instructional purposes. We refer to social media as the use of websites, applications, platforms, and other online tools where students can participate in social networks.

Technology's Effect on Students' Learning

Research has shown that while teachers recognize the potential benefits of technology and social media in their students' learning, they also have concerns about the possible harm and challenges of technology and social media in their students' learning skills (Albashtawi & Al Bataineh, 2020; Carpenter & Krutka, 2014; Mandasari & Wahyudin, 2021; Mercer et al., 2019; Van Den Beemt et al., 2020).

Numerous studies have demonstrated the benefits of incorporating technology into classrooms. For example, Mercer et al. (2019) found that technology-mediated spaces can help support classroom dialogue and improve students' interactions. Their work with elementary students using interactive whiteboards found that creating a digital space allowed students to share ideas and co-construct knowledge. The authors also found that "using technology with a dialogic intention thus opens up new kinds of opportunities for learners and teachers publicly to share, explain, justify, critique and reformulate ideas − using language and other symbolic representations" (Mercer et al., 2019, p. 192). Specifically for English Learners (ELs), digital mediums (such as Google Classroom or Zoom) in the classroom can be an integral component for supporting their language development. These findings align with those of Albashtawi and Al Bataineh (2020) and Mandasari and Wahyudin (2021), who also found that ELs utilized these digital platforms to support their language development.

In 2022, Akram and colleagues published a literature review on teachers' perceptions of technology integration in teaching and learning. The authors presented a meta-analysis of 25 representative articles published from 2017 to 2021. The researchers found that in most studies, teachers expressed positive attitudes toward integrating technology in the classroom. They discussed the role of technology in fostering connections between students, promoting engagement, and providing learning opportunities. The authors also found that using technology increased the students' creativity and academic performance. In particular, studies conducted during the COVID-19 pandemic revealed that technology-enhanced teaching improves instructional quality, especially among teachers who received adequate training. Technology was also seen as a positive asset in enabling teachers to "share course outlines, reference materials, lesson plans, assignment submissions, assessment reports, etc." (Akram et al., 2022, p. 5).

Similarly, Picton (2019) surveyed 219 teachers in the United Kingdom to examine how educators used digital resources to enhance literacy skills. The author found that most teachers agreed that technology supports struggling students, creates a more inclusive learning environment, provides students with opportunities to participate in creative tasks, and enhances students' reading, writing, and vocabulary skills. Williams and Beam (2019) examined 29 empirical studies published in peer-reviewed journals investigating the use of technology-based instruction embedded in the writing curriculum. They found that technology encouraged motivation, student engagement, and participation in writing assignments through social interaction and peer collaboration.

However, most studies have yielded negative findings regarding the use of classroom technology. For example, Williams and Beam (2019) also discovered that teachers faced numerous challenges while integrating technology into the writing curriculum due to a lack of adequate professional training. The studies in Akram et al. (2022) discussed barriers to effectively integrating technology into classrooms, including inadequate infrastructure that prevents teachers from receiving

appropriate professional development, suitable pedagogical models, and necessary resources. Picton (2019) also identified obstacles, including the lack of training and inadequate software, tools, and resources. Picton concludes that technology can be a powerful tool to enhance students' literacy skills. However, there is a need for an "educational transformation [that] will require support from policymakers and the technology sector, in consultation with academics, educationalists, and learners" (p. 28).

It is worth noting that some studies have reported that many teachers prefer face-to-face teaching, citing that communication and active participation are more beneficial for both students and teachers (Akram et al., 2022). Picton (2019) also reported that more than half of the teacher participants believed that "non-technology-based teaching was better than or just as good as technology-based methods" (p.3).

The Impact of Artificial Intelligence (AI) on the Classroom

The integration of AI, and more recently, Generative Artificial Intelligence (GenAI), has become pervasive in K-12 classrooms as writing enhancement resources, whether intentionally chosen by teachers or surreptitiously used by students. Some research suggests that integrating AI can be a powerful and valuable tool for promoting students' cognitive skills, enhancing learning, and transforming education (Al-Huwail et al., 2025; Klar, 2025; Levin et al., 2025; Tabib & Alrabeei, 2024; Vu & Vu, 2024). However, research has also shown the necessity for adequate guidance in effectively using GenAI in education.

For example, Tabib and Alrabeei (2024) contend that AI can enhance cognitive and metacognitive skills when used in the classroom with a clear purpose and appropriate guidance. In the same way, after synthesizing empirical and theoretical literature, Levin et al. (2025) suggest that in order for the effective integration of AI into the curricula, teachers need to scaffold "prompt engineering (e.g., refining AI queries), multimodal projects (e.g., creating cross-media narratives), and critical evaluation of AI outputs" (p. 250). These findings corroborate Klar's (2025) results from mixed-methods research involving 106 secondary school students. Klar notes that if students are provided with specific instruction and guidelines when using a chatbot, such as "prompt suggestions and a feature to adapt the output length and language level" (p. 6), it can enhance students' interactions with the chatbot and use of GenAI capabilities. Vu and Vu's (2024) study, which involved 20 ninth-grade students, found that while AI writing tools can enhance students' creativity and aid with grammar and structure, they do not improve essential writing skills. While the benefits and risks of using AI and GenAI have been discussed and documented, there is much debate about how to address ethical considerations via teacher and student training (Al-Huwail et al., 2025; Levin et al., 2025; Tabib & Alrabeei, 2024; Vu & Vu, 2024).

Effects of Social Media on Students' Literacy Skills

Social media has become an integral part of our society. It is one of, if not the primary, medium for people, especially young individuals, to express their opinions and communicate globally. Social media has also been explored as an instructional tool for enhancing the teaching and learning process among students. For example, Carpenter and Krutka (2014) surveyed 755 K-16

educators in the United States to explore their perceptions of using Twitter (now X) in education. The study found that educators had a positive attitude toward Twitter and valued its role in facilitating a collaborative community. However, research has also revealed the limitations and problems associated with social media as an instructional tool. Perkins (2013) found that using Twitter can lead to poor word choice and incomplete sentences due to its maximum character count.

Similarly, Greenhow and Askari (2017) reviewed 24 studies on the impact of social networks on teaching and learning. The authors concluded that the use of social networks in education has both advantages and disadvantages; however, they also contended that there are few studies conducted in formal settings that examine the perceptions and practices of actual classroom teachers in middle or secondary school settings. Greenhow and Askari (2017) recommended that "teacher education initiatives should set up opportunities to critically evaluate recent research literature on conditions for potentially beneficial or harmful social media integration" (p.18).

After reviewing the existing literature regarding social media in educational settings from 2005 to 2016, Van Den Beemt et al. (2020) found that some teachers reported an increase in student engagement and motivation when using Facebook and Twitter in writing and language arts classes. However, the authors reported that the results regarding the positive or negative effects of using social media in the classroom were not conclusive, but rather anecdotal. Furthermore, educators also mentioned district policies, lack of support, and issues regarding students' privacy and security limited the use of social media as an instructional tool (Carpenter & Krutka, 2014; Van Den Beemt et al., 2020).

These findings in the existing research literature helped guide us as we explore what our teacher/graduate students think about using technology in the classroom.

Method

Research Design, Procedure, and Participants

This study employed a concurrent embedded mixed-methods research design in which the quantitative and qualitative data were collected simultaneously. During the analysis, the qualitative data served as the primary source, and the quantitative data were used to support and enrich the qualitative findings (Creswell & Clark, 2017).

A purposive sampling approach was used to recruit teachers who taught English, Language Arts, or Reading in the 4^{th} to 12^{th} grades in the Southeastern United States. A list of 757 graduate students enrolled across a wide variety of programs in our college, which served at least a few potential participants, was used to distribute our initial recruitment email broadly. That email expressed our study's narrow focus on only English, Language Arts, or Reading teachers in grades 4 to 12. The emails also informed them of the study's purpose and encouraged their voluntary participation. Two follow-up recruitment emails, two weeks apart, were sent to participants to maximize sample size. At the conclusion of the four-week recruitment period, the data files (both quantitative and qualitative) were downloaded from Qualtrics, with the quantitative data in SPSS (.sav) format.

The first page of the digital Qualtrics survey contained the informed consent form. Participants were asked to close the browser if they did not wish to participate. Seventy-five potential participants responded to the recruitment email by logging into the Qualtrics survey. Thirty of these consented to participate and finished the survey. The questionnaire was completed, on average, in 23 minutes.

Of the $N = 30$ participants, 27 identified as female. Eleven teachers reported working in a rural area, 11 reported working in a small town, four reported working in a suburban area, and four reported working in an urban area. This imbalance reflects the university's location in a rural region of our state. Further, eight teachers identified as Black or African American, one identified as multiracial, and 21 identified as White, Non-Hispanic, again reflecting the demographics of our student population.

All human subjects' ethical guidelines for social-behavioral research were followed throughout the study. University Institutional Review Board (IRB) approval was secured prior to any data collection (IRB Approval No. H24022). After receiving IRB approval, the questionnaire was transferred to the Qualtrics platform for online administration. Participants requested no personal identifying information; hence, all data were deemed deidentified for data analysis purposes.

Materials and Instruments

A researcher-developed 22-item quantitative questionnaire, along with five open-ended questions, was employed to collect data from participants. The questionnaire included both quantitative self-report prompts and five open-ended, qualitative questions. The five open-ended questions were designed to gauge teachers' opinions and perceptions about using technology (e.g., computers, the internet) and social media (e.g., TikTok, Facebook, Snapchat, Twitter/X) in the classroom.

The 22 quantitative prompts were similarly divided into two separate scales, each comprising 11 prompts. One scale was related to the use of technology in the classroom, whereas the other scale included prompts regarding social media use in the classroom. It is essential to note that both scales were designed to assess whether technology and/or social media enhanced students' proficiency in various literacy skills (see Appendix A).

Reliability coefficients, McDonald's ω, for each scale were 0.81 and 0.91, respectively, demonstrating high and very high reliability. The questionnaire included seven demographic prompts. The 22 prompts were rated on a 3-point Likert scale, where 1 = Hindered, 2 = Neutral, and 3 = Helped.

Quantitative Data Analysis and Results

The researcher most experienced in quantitative analysis methods handled his part of the analysis. Data were screened for univariate outliers using box-and-whisker plots and were tested against relevant statistical assumptions, including homogeneity of variance, linearity, and normality. The

data did not contain any extreme outliers (more than three standard deviations from the mean) and met all the requisite statistical assumptions.

Although 19 of the 22 quantitative prompts were complete across all 30 participants, a few data points were missing, with two prompts lacking one response and one prompt lacking two responses. To retain all the participants' data, a series of analyses regarding missing values was conducted on the data. Little's Missing Completely at Random (MCAR) statistics (Little & Rubin, 1983) were used to evaluate whether the missingness pattern in the data was random. An MCAR p-value ≤ 0.050 indicates that the pattern is non-random and, problematically, there are systematic differences in non-responses. In contrast, an MCAR p-value ≥ 0.051 indicates the inverse, that the gaps in the data are unproblematically random. The results revealed that, for both scales, the missingness pattern was random, with all MCAR p-value ≥ 0.816. Therefore, the missing data could be imputed without biasing the results.

The Expectation Maximization (EM) algorithm (Tabachnick & Fidell, 2019) was employed to impute the missing data points for each scale separately. The EM algorithm is a regression-based analysis that predicts the most likely response for each missing data point by using all available observed data for each participant. It is considered a superior approach to imputing data when it is MCAR (Tabachnick & Fidell, 2019). Thus, all 30 cases were available for quantitative data analysis.

Descriptive and Correlational

Descriptive statistics for the technology and social media scales are displayed in Table 2. The means are based on a 3-point Likert scale, ranging from 1 (Hindered) to 3 (Helped).

Table 2
Descriptive Statistics for the Technology and Social Media Prompts by Literacy Skill

Literacy Skill	*M*	*SD*
TECHNOLOGY		
Reading Fluency	1.98	0.55
Reading Comprehension	2.20	0.58
Critical Thinking Skills	1.66	0.50
Research Skills	2.49	0.54
Grammatical Conventions	1.69	0.53
Writing Essays	2.09	0.54
Using Virtual Representations	2.77	0.34
Interpreting Visual Representations	2.57	0.45
Ability to Create Small Group and Individual Projects	2.71	0.40
Ability to Work Independently at their Own Pace	2.60	0.48
Ability to Orally Present Projects	2.25	0.54
SOCIAL MEDIA		
Reading Fluency	1.58	0.44
Reading Comprehension	1.52	0.47

Critical Thinking Skills	1.45	0.47
Research Skills	1.71	0.54
Grammatical Conventions	1.23	0.32
Writing Essays	1.52	0.47
Using Virtual Representations	2.39	0.49
Interpreting Visual Representations	2.32	0.54
Ability to Create Small Group and Individual Projects	2.10	0.51
Ability to Work Independently at their Own Pace	2.03	0.52
Ability to Orally Present Projects	1.87	0.60

$N = 30$

As evident in Table 2, our teacher participants reported that technology broadly helped their students develop their literacy skills, with a mean for technology, $M \geq 2.20$ on 7 of the 11 prompts. On the other hand, our teacher participants reported that social media generally hindered students' ability to develop essential literacy skills, with a mean score for social media, $M \leq 1.87$, on 7 of 11 prompts.

The two prompts that best exemplified this dichotomy were Reading Comprehension ($M = 2.20$ vs. $M = 1.52$) and Research Skills ($M = 2.49$ vs. $M = 1.71$), both of which manifested large inversions across the two scales. A smaller inversion ($M = 2.25$ vs. $M = 1.87$) was found regarding the Ability to Orally Present Projects.

On both scales, Using Virtual Representations was identified as the skill best supported by both technology and social media. This is unsurprising because it is, by definition, a technological task. Also among the highest means in both scales was the closely related skill of Interpreting Visual Representations, which is increasingly taught electronically in the classroom. Weaker double positives were found regarding the Ability to Create Small Group and Individual Projects and the Ability to Work Independently at their Own Pace, with the support of technology far outstripping social media.

Also on both scales, teachers identified Critical Thinking Skills and Grammatical Conventions as the areas of literacy most negatively impacted by both technology and social media. Substantial negative impacts upon Reading Fluency and Writing Essays were attributed to social media, but not to technology in general. Many of these quantitative findings will be addressed by our qualitative data.

Qualitative Data Analysis and Results

The two researchers with the most experience in qualitative analysis examined this data. Data were analyzed, recursively coded, and classified using a descriptive and interpretive approach to elucidate themes (Vaismoradi et al., 2016). After reading the responses of all participants separately, the researchers conducted initial coding using keywords from the quantitative survey and descriptive phrases related to the research questions. Initially, the data were classified into ten different labels. After analyzing the initial set of labels, the researchers merged and combined some

of the interrelated labels and reclassified the codes. After the second coding round, the researchers identified five themes (see Appendix B).

Findings

The study identified five dominant themes within the qualitative data. This section presents the findings based on the research questions that guided this study. Three themes are related to the Research Question 1: *What are the teachers' perceptions of the impact of technology and social media on their students' literacy skills? In their opinion, what specific students' literacy skills are hindered or enhanced by technology and social media?* The following three themes will be discussed below, supported by quotes from the participants.

Technology Facilitates Reading Comprehension and Differentiation

Our participants' responses to open-ended questions elaborated that reading comprehension is enhanced in two ways by technology: by offering teachers the ability to differentiate and even individualize instruction for students, and by providing students with choice in their learning. This aligns with our qualitative analysis, wherein participants agreed that technology, but not social media, facilitates students' reading comprehension. Participants referred to several programs as ways they had utilized technology to integrate and enhance reading instruction and assessment in their classrooms. They cited these technologies as being instrumental in facilitating reading comprehension. By allowing students choice in their learning and facilitating individualized/differentiated learning, our participants praised technology as a tool that can have a positive effect on a literacy curriculum, especially reading comprehension.

One participant stated, "We use an online program for reading comprehension with our SPED students. It has greatly enhanced their reading comprehension levels. We also use Google Classroom to allow students to work at their own pace." Technology offers ease of differentiation and individualization for reading instruction, enabling students to work at a self-directed rate. As stated, one participant uses the technology-based tool, "Readworks to allow students to independently practice their reading comprehension skills and provide feedback." Furthermore, participants noted that they have been able to use other technology-based tools to differentiate more effectively. They stated that students utilize i-Ready, IXL, and Read180 software to meet their goals and engage in targeted instruction tailored to their individual learning needs. They argued that technology can offer a "personalized learning pathway that addresses [students'] individual literacy needs."

Beyond facilitating reading comprehension through differentiation and individualization, technology allows students to make choices about their learning. With multiple entry points and pathways, technology offers students the opportunity to guide their own learning through a multitude of options, opportunities, and resources, as "technology opens new possibilities for communication and information" (Leu et al., 2004, p. 1570). Some participants spoke positively about technology's fast access to a wide range of materials, such as "expos[ing] students to multiple genres of text in an instant." Other participants mentioned how some of their students preferred technology-based reading materials to traditional ones. One participant responded that,

> Technology has helped my students' reading skills because we use several software to have them read. A lot of my students don't want to read a paperback book. They prefer to use the software SORA because they have access to read-aloud books, ARC (American Reading Company) Bookshelf app, and we use a Read 180 software called Reading Counts to have them test what they read.

Students are motivated to read when given choices (Schiefele et al., 2012; Wigfield et al., 2016). The integration of technology expands the range and frequency of student options when reading digitally or working on collaborative projects (Schmar-Dobler, 2003; Van Den Beemt et al., 2020; Williams & Beam, 2019).

Technology and Social Media Decrease Basic Writing Skills

Despite technology's many positive attributes, two negative themes arose in our participants' open-ended responses. As our qualitative analysis indicated, our participants repeatedly asserted that students' basic writing skills, especially attention to grammatical conventions, are diminished by technology, especially social media. Several facets of students' writing abilities have suffered, as mentioned by one participant,

> I've noticed a decrease in reading and writing stamina. I have noticed a significant decrease in spelling and grammar knowledge, which affects writing. Difficulty with word recognition and decoding skills have affected reading fluency which causes difficulty with reading comprehension.

In their qualitative commentaries, our participants provided several causative rationales for this decrease in students' writing abilities, including (a) lack of physical books and pencil-paper based graphic organizers, which serve as models for students' writing, (b) reliance on technology-based tools to perfect conventional writing skills such as capitalization, punctuation, grammar, and spelling, (c) poor technology-based writing examples such as text messaging, which leads students to use abbreviations and provide shorter written responses and a reliance on "text talk" and slang instead of using proper grammar.

These statements align with other research-based findings regarding technology-enhanced literacy instruction. Teachers often experience difficulty when faced with contemporary students' lack of basic writing skills and limited writing abilities in general (Vu & Vu, 2024). However, research suggests that incorporating technology into writing instruction, when properly structured, can motivate students by facilitating social interaction and peer collaboration, as well as supporting composing and processing skills (Williams & Beam, 2019; Vu & Vu, 2024). The difficulty lies in teachers' ability to use technology effectively to enhance students' writing. This significant discovery suggests that teachers require timely and relevant professional development to enhance their ability and attitudes regarding teaching writing effectively using technology (Akram et al., 2022; Picton, 2019; Williams & Beam, 2019).

Critical Thinking Skills Undermined by Google Search and AI

The third theme derived from the participant responses centered on students' reliance on technology and social media and how this reliance negatively impacts their critical thinking skills. This critique was also documented in our quantitative data. Some participants noted that students have become increasingly dependent on technology rather than building their own knowledge and skills. One participant wrote, "When posed with questions on paper, I have caught students typing the question into Google and writing down the first answer they see. Rather than forming an answer independently, they are using someone else's thoughts." Other participants were also concerned that their students were relying too heavily on technology for answers, rather than presenting their own ideas, particularly by copying and pasting the work of others. As stated by another participant, "continued access to such a vast amount of information has formulated students that don't know how to create, critically think, or figure out answers and responses themselves. They want it spoon-fed to them." This critique was also documented in our quantitative data.

Research consistently reiterates the effectiveness of technology in the classroom in enhancing many teaching and learning processes. However, students should utilize this tool to access information, critique and synthesize that information to create new knowledge, and share it globally. Rather than copying and pasting what is found online, students should be taught to "interpret and respond to information from multiple social and cultural contexts that share profoundly different assumptions about our world" (Leu et al., 2017, p. 6). Therefore, educators must prepare their students "to think critically, interpret the meanings they find on the Internet, and communicate with others" (Leu et al., 2017, p. 6). Additionally, Leu and colleagues (2017) reiterate the importance of promoting critical thinking skills in students, as they are central to students' interaction with New Literacies and technology. Although critical thinking skills have always been integral within the literacy curriculum, innovative technologies and communication are complex, and "new social practices will be needed in classrooms to interact within increasingly complex technologies for information and communication" (Leu et al., 2017, p. 7). Therefore, the literacy curriculum will require teachers to offer a range of new strategies to help students succeed within a technology-based curriculum.

Two themes were identified that respond to Research Question 2: *What are the teachers' concerns about using technology and social media in the classroom, and what recommendations do they offer?* These two themes will be discussed in detail and supported with quotes from our participants.

Teaching Students How to Evaluate Sources and Detect False Information

Our teachers expressed great concerns about their students' access to false and harmful information within the immense amount of information they are exposed to daily, both inside and outside the classroom. Our participants' qualitative responses indicated that they blamed social media for this exposure and consequent undermining of research skills. For example, some of their comments were:

> "So much false information is presented as facts by so many people and organizations."

> "Students are inundated with large amounts of information, much of which may be inaccurate or misrepresented."
> "The media does not explain the information and what is happening."
> "Instead of objective viewpoints, users are constantly subjected to the simplistic, thoughtless opinions of everyone on said platforms."

Teachers' concerns extended beyond inaccurate information to encompass the emotional well-being of students. One participant wrote, "Many teenagers do not know how to spot credible sources and are easily swayed by misinformation that pervades social networks." Another participant was even more assertive regarding social media and students' mental health: "Social media has warped their minds and given them a false sense of reality."

The participants also noted that they are responsible for teaching students how to critically evaluate websites. One of them stated that "Students truly have to be taught to be critical observers of these pages and pushed to fact-check all information." Commonly, participants asserted that they were not only in charge of teaching grammatical conventions and academic writing, but they also had "to correct the misconceptions students have gained from social media."

As a result, participants shared ways in which they have effectively used social media to teach students critical awareness and how to evaluate sources. One of the teachers mentioned that she showed her students "examples of 'fake news' and showed them the importance of checking facts. We used Wikipedia, Facebook, and YouTube." With examples like this, teacher participants believed that technology should be used to challenge falsehoods in social media.

With the increased use of technology in the classroom, it has become essential for teachers to intentionally teach students how to find and synthesize information and "critically evaluate the information they found" (Leu et al., 2004, p. 1576). This theme demonstrated the participants' awareness of their responsibility to teach their students the necessary skills to become digitally and critically literate citizens in our always-evolving global society.

Appropriate Use of Technology Can Nurture Creativity and Literacy Skills

Research has found that when technology is not used purposedly and with adequate guidance, it has the potential to hinder students' literacy skills, especially writing and reading (Albashtawi & Al Bataineh, 2020; Al-Huwail et al., 2025; Carpenter & Krutka, 2014; Mandasari & Wahyudin, 2021; Mercer et al., 2019; Van Den Beemt et al., 2020; Vu & Vu, 2024).

The final theme was focused on the participants' opinions regarding the effective use of technology in the classroom. The teacher participants considered technology an excellent tool for advancing their students' literacy skills, provided it is used appropriately. For example, one of the participants stated, "Technology in the classroom is a gift. We just need to make sure we are using it intentionally." Another stated, "I feel that with adult supervision of technology, it is a wonderful and necessary method to use in education." They argued that using technology with a clear purpose and training can benefit students and help promote reading and writing skills. The participants shared how technology and social media have benefited their students.

For example, the teachers praised Read 180, System 44, and i-Ready as effective ways to "differentiate instruction tailored to each child's individual need" and "help students with fluency and comprehension." Similarly, the participants also shared how the focused and well-thought-out use of technology and social media has benefited their students. For example, they mentioned how Blogs, YouTube, Vlogs, and podcasts have enhanced their students' engagement in literacy and writing "because it is relevant to their day-to-day lives and interests." Students are exposed to "different topics from YouTube to help my students," and "social media could help students be exposed to more ideas that they may become inspired to read about."

Special emphasis was placed on how technology in the classroom promotes creativity among students, allowing teachers to "add computer games for specific skills, have students create Docs, Slides, and create video clips." They also noted that technology and social media have helped facilitate collaborative projects and presentations that demonstrate enhanced visual and oral literacy skills among their students. In addition, they mentioned that "YouTube and Vlogs gave students a creative and relatable outlet to display knowledge and the skills they are learning." This aligns with our quantitative findings, which indicate that our participants viewed both technology and social media as enhancing student use and interpretation of virtual and visual representations. These findings also corroborate and expand on research that has demonstrated the positive impact of technology in the classroom on students' interactions, creativity, and academic performance (Akram et al., 2022; Picton, 2019; Tabib & Alrabeei, 2024; Vu & Vu, 2024). Below are a few specific ideas lauded by the participants.

- "Create a fake Instagram post to show significant events in stories we read. This helps increase engagement."
- "Use TikTok to create 'Book Toks.' Using this tool made my students read the book, rate it, and persuade their audience to read the book."
- "Use Instagram as a tool to allow students to demonstrate their understanding of character traits and summarizing. It activates critical thinking and research skills. Example: Let us look at this person's Instagram. What inferences can you make about this person? How can you prove it?"

Overall, our participants' open-ended responses demonstrated that they support using technology to enhance education, but within limits and not as the sole teaching strategy. "Technology can be useful for instruction and learning, but students/teachers must use it as a tool, not as a substitute for instruction," stated one participant. Another teacher contended that "There needs to be restraints set in place on how much time is spent on technology," arguing that sometimes students get distracted and do not take their work seriously. Regarding the time spent on technology, the participants asserted that they should combine traditional teaching methods with technology to enhance learning. One noted that "a healthy balance of each [technology and traditional teaching] may complement each other and improve students' learning and literacy." These findings align with Picton's (2019) research, which found that some teachers believed instruction without technology could be as effective as, or even better than, technology-based instruction.

Discussion, Implications, and Recommendations

The following section presents a discussion of the five themes identified from the qualitative data, along with their implications and plausible recommendations. Two themes focus on the positive aspects that teachers in this study found when implementing technology and social media in the classroom: Technology Facilitates Reading Comprehension and Differentiation, and Appropriate Use of Technology Can Nurture Creativity and Literacy Skills. The three remaining themes focus on some concerning issues teachers identified regarding technology and social media in the classroom: Technology and Social Media Decrease Basic Writing Skills, Critical Thinking Skills Undermined by Google Search and AI, and Teaching Students How to Evaluate Sources and Detect False Information.

Positive Effects of Integrating Technology and Social Media into Classroom Instruction

As mentioned in the findings, teachers agree that technology usage in the classroom helps facilitate students' reading comprehension in two ways: by enabling teachers to differentiate/individualize instruction for their students, and by providing students with choice. Research has shown that choice motivates students to read (Schiefele et al., 2012; Wigfield et al., 2016). Furthermore, integrating technology enhances the range of choices students have when reading and/or when on individual or collaborative projects (Schmar-Dobler, 2003; Van Den Beemt et al., 2020; Williams & Beam, 2019).

Additionally, technology enables teachers to individualize and differentiate instruction more easily and effectively for students. Due to its multiple entry points and pathways, technology enables students to navigate their learning through numerous options, opportunities, and resources. In this way, "technology opens new possibilities for communication and information" (Leu et al., 2004, p. 1570).

Thanks to these multiple pathways, technology and social media also have the potential to enhance students' literacy skills and creativity. Research suggests that incorporating technology into the classroom can enhance students' interactions, creativity, and academic performance (Akram, 2022; Picton, 2019; Tabib & Alrabeei, 2024; Vu & Vu, 2024). Furthermore, technology can bring students together beyond the physical barriers of a classroom or within the confines of a school day. Students can continue to collaborate on group activities in various spaces and at different times. Also, the facility with which visual and virtual representations can be manipulated using technology facilitates creative understanding and presentations of knowledge.

Thus, for some purposes, our teacher participants considered technology, and sometimes social media, to be practical tools for advancing their students' literacy skills when used appropriately. Research suggests that technology and/or social media can also be motivating and useful tools when used appropriately and intentionally; however, they can also hinder some literacy skills. (Williams & Beam, 2019; Vu & Vu, 2024).

Negative Impacts of Technology and Social Media upon Teaching and Learning

Along with the above positive attributes, three negative themes regarding the impact of technology and social media on literacy education emerged from our qualitative findings. Our quantitative data corroborated these findings. Based on our findings, it is essential to highlight how technology and social media usage decrease students' basic writing skills, critical thinking skills, and ability to evaluate sources and detect false information. To reverse these impacts, teachers must be provided with adequate and relevant professional development on the effective use of not only technology and social media, but also increasingly pervasive versions of AI and GenAI.

The Need for Professional Development

Following the mixed reviews from our teachers regarding the use of technology and social media in the classroom, along with their recommended activities that effectively integrate these tools, we assert the necessity for professional development focused on the strategic and systematic use of these tools in the classroom. Teachers need guidance and time to properly integrate these tools and discover their potential while countering the negative potential outlined in this study.

Focus on Students' Development of Critical Thinking

A special focus of such professional development should be on developing students' critical thinking skills. In all aspects of traditional reading instruction, teachers focus on students' ability to think critically and analyze texts. The same should be true for literacy instruction incorporating technology and social media. Students should also be taught critical thinking skills when prompting AI and GenAI and learn that technology and social media are tools for literacy instruction and cannot replace students' ability to think critically, only enhance it (Picton, 2019; Schmar-Dobler, 2003; Van Den Beemt et al., 2020; Williams & Beam, 2019).

Focus on Students' Development of Metacognitive Skills

Professional development in metacognitive skills would be beneficial for teachers to help their students develop critical thinking skills. Flavell (1979) originally coined the term "metacognition" and defined it as higher-order thinking processes in which one's cognition is the subject of regulatory and monitoring processes. Schraw and Moshman (1995) subsequently expanded the concept. They provided specificity to the construct by postulating that metacognition involves metacognitive experiences (e.g., episodes in which people are self-aware and mindful of tasks, environments, affect, and others), metacognitive knowledge (e.g., knowledge of oneself as a person, including habits, strengths, shortcomings, etc., that help people to succeed in tasks), and metacognitive skills (e.g., emotion regulation, mindfulness, self-generated feedback, self-questioning, planning, information management strategies, monitoring, debugging strategies, and evaluation). To this end, technologies such as generative AI and gamified learning environments embedded within social media can help educators develop, train, and foster students' metacognitive knowledge, experiences, and skills. Authentic scenarios, for instance, can be designed to model effective and practical regulatory and monitoring skills in students, thereby enhancing their learning outcomes. One project, MetaCog, uses GenAI within a gamified learning environment to first learn about the user (Author et al., under review) and then train students in the metacognitive skills in which they are weak, followed by those in which they are average.

Focus on Social-Emotional Learning

Several participants expressed concerns about technology, particularly social media, endangering students' mental health outside the classroom. “Addressing students’ social and emotional needs is vital, and it should be a priority for all teachers [as these skills] directly influence students’ academic ability” (Savitz et al., 2021, p. 253). Students need more social and emotional learning focused on the impacts of technology and social media on their identities and self-images. As previously mentioned, technology and social media offer students’ opportunities to communicate and collaborate beyond school hours and locations. Unfortunately, without these confines, social media often accelerates, amplifies, and conceals the bullying and abuse teachers monitor during the school day. Therefore, in addition to instructing students about dubious information sources for academic work, teachers should also address the unfair and inaccurate nature of much of the personal information encountered on social media. Then, teachers and students can engage in social-emotional learning conversations seeking to establish less-damaging norms on their shared social media.

Limitations

Although this study is limited to data from 30 teachers from 4th through 12th grade, these findings align with the opinions of teachers we have heard and read during our years of work with in-service teachers in our graduate programs. Nonetheless, this study has limitations. The researchers suggest conducting further research to confirm or refute the findings in this study using a larger sample size and extending the study to other states and regions. Additionally, future research is needed on how to plan and implement instructional uses of social media, technology, and especially AI and GenAI, that increase both students’ motivation and their development of literacy skills.

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Appendix A

Technology, Social Media, and the Development and Proficiency in Literacy Skills Questionnaire

1. How has the use of TECHNOLOGY (computers, the internet) IN YOUR CLASSROOM helped or hindered your students' development and proficiency in the following literacy skills:

	Helped	Neutral	Hindered
a. Reading fluency			
b. Reading comprehension			
c. Critical thinking skills			
d. Research skills			
e. Grammatical conventions			
f. Writing essays			
g. Using visual representations			
h. Interpreting visual representations			
i. Ability to create small group and individual projects			
j. Ability to work independently at their own pace			
k. Ability to orally present projects			

Can you share HOW TECHNOLOGY IN YOUR CLASSROOM has helped or hindered your students' literacy skills (especially reading, writing, and visually representing)?
Please mention any specific software or other technology-based programs implemented in your classroom.

_____
_____
_____

Can you share HOW OTHER TECHNOLOGIES OUTSIDE THE CLASSROOM (e.g., video games, YouTube, VEMO, Blogs, Vlogs, Podcasts, etc.) have helped or hindered your students' literacy skills (especially reading, writing, and visually representing)?

_____
_____
_____

2. How has SOCIAL MEDIA helped or hindered your students' development and proficiency in the following literacy skills:

	Helped	Neutral	Hindered
a. Reading fluency			
b. Reading comprehension			
c. Critical thinking skills			
d. Research skills			
e. Grammatical Conventions			
f. Writing essays			
g. Using visual representations			
h. Interpreting visual representations			
i. The ability to create small group and individual projects			
j. The ability to work independently at their own pace			
k. The ability to orally present projects			

Can you share HOW SOCIAL MEDIA has helped or hindered your students' literacy skills and proficiency?

_____
_____
_____

Have you used SOCIAL MEDIA as an INSTRUCTIONAL TOOL? If so, HOW? Did it help? HOW? Please mention which platforms you used.

_____
_____
_____

Final Thoughts? _____
_____
_____
_____

Appendix B
Coding

Q. 1 What are the teachers' perceptions of the impact of technology and social media on their students' literacy skills? In their opinion, what specific students' literacy skills are hindered or enhanced by technology and social media?	First Round of Coding	Second Round of Coding	Theme
	Technology Helps Reading Comprehension --Provides Choices	Technology Helps Reading Comprehension -Provides Choices Independent Practice and Differentiation	Technology Facilitates Reading Comprehension and Differentiation
	Independent Practice and Differentiation		
	Technology and Social Media Hinder Writing	Technology and Social Media Hinder Writing	Technology and Social Media Decrease Basic Writing Skills
	Critical Thinking Skills Restricted by Google Search and AI	Critical Thinking Skills Restricted by Google Search and AI	Critical Thinking Skills Undermined by Google Search and AI
Q. 2 What are the teachers' concerns about using technology and social media in the classroom, and what do they recommend?	First Round of Coding	Second Round of Coding	Theme
	Technology Should Be Used Purposely to Enhance Students' Skills and Engagement	Technology Should Be Used Purposely as an Instructional Tool to Enhance Students' Skills and Engagement Using Technology and Social Media to Promote Creativity Among Students	Appropriate Use of Technology Can Nurture Creativity and Literacy Skills
	Social media and Technology Expand Students' Options for Creative Work Using Social Media as an Instructional Tool		
	Technology and Social Media Provide Access to False Information	Teach Students How to Evaluate Sources and Detect False Information	Teaching Students How to Evaluate Sources and Detect False Information
	Teaching Students How to Evaluate Sources		