

Evaluating the Influence of Technology Integration on Teaching and Learning of Social Studies in Senior High Schools in Northern Ghana

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Abstract

On a global scale, it is essential to incorporate technology into various aspects of growth. The purpose of this study was therefore to investigate the benefits of integrating technology into training, as well as determine factors that affect technology integration in the teaching and learning of Social Studies in Senior High Schools in Northern Ghana. The mixed-methods study examined implementation problems, learning outcomes, and success factors using data from questionnaires (completed by 1,200 students and 180 instructors), semi-structured interviews, and classroom observations in 15 Senior High Schools. To allow for repeated observations and account for seasonal fluctuations, the data were collected over nine months (July 2024 to March 2025). Schools were purposefully sampled to ensure that the sample was representative of the districts and school types (urban vs. rural, large vs. small enrollment). Students were recruited through stratified random sampling from within each school, with grade level and gender proportionally represented. According to the findings, students who attend classes with more technology exhibit notable gains in critical thinking, digital literacy, and engagement. However, several significant challenges remain, including brittle infrastructure, inadequate internet access, and insufficient teacher preparation. Higher rates of implementation were seen in schools with strong principal support. These findings suggest that while technology integration may foster the development of 21st-century skills, its implementation depends on governmental interventions that address professional development, infrastructure, and resource allocation in underprivileged areas. To ensure that cultural concerns are taken into consideration and local support is established, the research recommends that parents and community members be included in the planning process for technological integration.

Keywords: Educational Technology, Social Studies Education, Developing Countries, Digital Divide.

Introduction

On the global stage, certain facets of growth have become essential. The digital era has revolutionized the education industry by providing new methods of teaching and learning in the classroom and altering long-held beliefs. The need for successful integration in many educational contexts has been highlighted by this trend in digital learning, particularly in underdeveloped nations where infrastructure and learning material resources present

implementation challenges (Tondeur et al., 2021). The government of Ghana has recognized the value of educational technology, particularly in underprivileged regions such as the Northern Region (Ghana Education Service, 2023).

According to the National Council for the Social Studies (NCSS, 2013), it is imperative to integrate technology into the teaching of Social Studies to adapt to the digital age and connect with students in courses. Social Studies teachers are, thus, expected to use information and communication technologies (ICT) effectively to plan the teaching process, develop digital materials, and evaluate teaching to support student development (Ozgur, 2020). These expectations are an important indicator of understanding of education in the 21st century, as they effectively shift from traditional to digital approaches. Generally, teachers face challenging contextual factors when incorporating ICT into their courses and competencies, especially in resource-poor communities. It is in light of these factors that technological integration in Northern Ghana presents a valuable case to explore. Marked by infrastructure deficits, a limited number of teachers, and socioeconomic challenges, this area is representative of the challenges of many educational systems in sub-Saharan Africa (Ministry of Education, Ghana, 2024). Social Studies instruction, encompassing history, geography, civics, and cultural studies, holds the most promise for technology-mediated learning through the use of interactive maps, virtual field trips, multimedia presentations, and a collaborative online environment, which can revolutionize the traditional method of lecturing content (Hassan & Kim, 2024).

When integrating ICT into their courses and competencies, instructors typically encounter complex contextual issues, particularly in regions with limited resources. These considerations make Northern Ghana's technology integration an interesting case study. The difficulties faced by many educational systems in sub-Saharan Africa are reflected in this region, which is characterized by socio-economic problems, a shortage of instructors, and inadequate infrastructure (Ministry of Education, Ghana, 2024). The most promising use of technology-mediated learning is in social studies education, which includes geography, history, civics, and cultural studies. Interactive maps, virtual field excursions, multimedia presentations, and a collaborative online environment can transform the conventional approach to lecturing content (Hassan & Kim, 2024). Although school-based teaching and education are becoming more popular, there is a dearth of systematic evaluation of their efficacy, particularly in rural areas. Previous research has noted high teacher motivation and positive attitudes toward technology integration (Alhassan et al., 2024); however, notable gaps still exist between intentions and actual classroom implementation. To close these gaps, this study examines the potential benefits and challenges of integrating technology into Northern Ghana's Social Studies classrooms. The purpose of this study was to investigate whether integrating technology into training has a significant benefit over conventional methods, as well as to determine some factors that affect technology integration on the teaching and learning of Social Studies in Senior High Schools in Northern Ghana.

Literature Review

Theoretical Foundations of Technology Integration

Several overlapping theoretical frameworks that clarify the acceptance and effectiveness processes have served as the foundation for integrating educational technology. Despite numerous examples, the most well-known of these models is the one that emphasizes integration as a key component of ICT integration (Mishra & Koehler, 2020). Contextual aspects, including institutional and environmental factors, which are critical to implementation success, have just lately been included in TPACK (Chen & Zhang, 2023).

Theoretical Framework

The most important factors influencing adoption are outlined in the Technology Acceptance Model (TAM), which further elucidates the decision-making process surrounding adoption. The effective adoption of extended TAM models in educational contexts is mainly dependent on pedagogical beliefs, institutional support, and resource availability (Rodriguez Comeche et al., 2022). Since technology adoption is not only a technical endeavor, recent research emphasizes the importance of viewing technology integration as a socio-technical process (Foster et al., 2023).

Integration of CBT in Social Studies Instruction

Students may now participate in new types of historical research, spatial analysis, and civic involvement, due to the increased emphasis on digital resources (Thompson & Williams, 2024). Students can understand spatial linkages and conduct practical geographic research due to Geographic Information Systems (GIS). Meanwhile, virtual reality apps provide students with access to historical experiences that would otherwise be unavailable in a conventional classroom (Martínez et al., 2020). One effective teaching method that has been proposed is digital storytelling, which enables students to create multimedia narratives that demonstrate an understanding of culture and history (Lee & Johnson, 2022). Historical information can be accessed through primary source databases, and students can actively participate in simulation software to explore complex social and political processes. Adopting a tool alone is insufficient for successful technology integration; paradigm shifts in pedagogical attitudes and an embrace of student-centered and inquiry-based learning are also necessary (Hassan & Kim, 2024). Numerous studies show that the application of technology has a greater influence on education than its mere existence (Clark, 2021).

Educational Technology in the Developing World

Technology for Text

The distribution of educational resources is one area where educational technology has become widely used in underdeveloped nations. Inadequate infrastructure, restricted access to resources, and conflicting educational demands are obstacles to the implementation of educational technology in underdeveloped nations. However, when properly conceived and executed, successful programs demonstrate how technology can

be used to address challenges of quality and access in education (Parker & Lewis, 2024). In Ghana, several well-known initiatives have had a discernible impact. Technology may help overcome geographical challenges, as evidenced by the Making Ghanaian Girls Great (MGCubed) initiative, which utilized satellite-powered classrooms to provide interactive education to nearly 36,000 pupils in remote locations (Varkey Foundation, 2021).

To improve literacy results in low-access environments, the Ghana Reads intervention also utilized inexpensive tablets with offline content libraries (Open Learning Exchange Ghana, 2022).

Particularly in Sub-Saharan Africa, where mobile phone adoption exceeds that of even the most basic computing infrastructure, mobile learning is a fast-developing approach. According to local research, learning can be enhanced by combining mobile technology with existing technology in an interventionist and intrinsically optimal manner (Kumar & Patel, 2023).

Problems in the School Setting in Northern Ghana

Technology integration in schools is challenging in the Northern Region due to specific pedagogical issues. Inadequate infrastructure includes unstable electrical supplies, expensive or unreliable internet access, and poor-quality educational facilities (Ministry of Education, Ghana, 2024). A shortage of instructors also limits their access to professional development opportunities, which hinders their capacity to employ successful tactics. Despite these challenges, new research has shown great potential for technological integration. High teacher ICT knowledge and positive self-efficacy attitudes regarding technology use were found in research done in the Kumbungu District Junior High Schools, indicating that teacher attitude may not be the main implementation barrier (Alhassan et al., 2024).

Socio-economic factors also influence the success of technology integration. The fact that family income influences pupils' access to gadgets and the internet after school may potentially exacerbate educational disparities. However, the possibility of using mobile-first technology is shown by the high mobile phone adoption rate (more than 80% in rural regions).

Methodology

Research Design

Setting and Participants

In Ghana's Northern Region, the study was conducted in 15 Senior High Schools spread across three Districts: Saboba District (3 schools), Yendi District (3 schools), and Tamale Metropolis (9 schools). These Districts, which had varying levels of local resources and urbanization, were not selected randomly.

Teacher participants: One hundred and eighty qualified Social Studies Teachers participated from the sampled schools. Participants had 2-25 years of teaching experience ($M = 12.4$, $SD = 6.8$), and their technology-related training as well as experiences in

technology varied. As is typically observed in secondary schools in Ghana, the percentage of male was 58% and the percentage of females was 42%.

Student sample: A total of 1,200 students from Forms 1 through 3 were chosen as a sample. Following grade and sex stratification, subjects were enrolled in available classes and then randomly assigned to them. The age range of the participants was 15–19 years old ($M = 16.7$, $SD = 1.2$), reflecting the diverse socio-economic circumstances typical in the Northern Region.

Sampling Strategy

To ensure that the sample was representative of the districts and school types (urban vs. rural, large vs. small enrollment), schools were purposefully sampled. When asked to participate at the school level, 94% of social studies instructors agreed. Students were recruited through stratified random sampling from within each school, with grade level and gender proportionally represented.

Data Collection Instruments

Four standardized questionnaires were used to collect data:

Technology Integration Survey for Teachers (TIST): Based on Khat (2010), a 45-item tool was designed to gauge teachers' perceptions in terms of barriers and enablers to technology integration and actual in-use practices. In the current sample, the internal consistency of the survey was good (Cronbach's $\alpha = 0.87$).

Student Learning Outcomes Assessment (SLOA): An assessment of students' development in digital literacy, critical thinking, topic understanding, engagement, and teamwork. After being examined by specialists and drafted in compliance with the goals of the Ghanaian Social Studies curriculum, the items underwent a pilot test.

Classroom Observation Protocol (COP): A standardized observation instrument intended to document pedagogical and student involvement aspects as well as trends in technology use. A sequence of training sessions was used to guarantee inter-rater reliability (resulting in Cohen's $\kappa = 0.82$ for key variables).

Semi-structured interview guide (SIG): The interview scripts for the teachers ($n = 36$) and students ($n = 48$) examined their experiences integrating technology, as well as the advantages and difficulties they observed, and strategies for improving it. The interviews lasted 30 to 45 minutes and were conducted in either English or the participants' preferred native language.

Data Collection Procedures

To allow for repeated observations and account for seasonal fluctuations, the data were collected over nine months (July 2024 to March 2025).

Phase 1 (September-October 2023): Baseline surveys and introductory interviews were established. To determine the current level of technology use and the perceptions of

students and instructors regarding each other's usage of it, preliminary surveys and interviews were conducted with both groups.

Phase 2 (November 2023-April 2024): Every month, three to four lessons were observed in the classrooms of teachers from each school. At the beginning and end of the course, a post-test was administered.

Phase 3 (May-June 2024): Over time, shifts in attitudes and behaviors were documented through repeated surveys and interviews.

Ethical Considerations

Additionally, written consent was acquired from the Regional Education Directorate and the Ghana Education Service. Participants under the age of 18 were always kept private when using participant-driven approaches, and data processing was anonymous.

Data Analysis

Quantitative Analysis: Survey analysis of variance (ANOVA) for group differences was conducted using SPSS 28.0.1 computed effect sizes (Cohen's *d*) from significant comparisons. The assumptions of variance homogeneity and normality were confirmed, and the required adjustments were made.

Qualitative Analysis: NVivo 12 (MERNI, BZD56E7F1) was used to analyze the observation notes and interview transcripts, employing the six-phase thematic analysis approach proposed by Braun and Clarke (2022). An inter-coder agreement of more than 85% was obtained by using open coding to improve reliability through collaborative coding. Inter-coder agreement was then calculated for the primary themes, from which actor-level coding was produced.

Integration: The results demonstrate the effects of technology integration and the setting in which integrated teaching and learning occurred, as evident through collaborative displays and narrative weaving.

Findings

The availability and use of technological resources varied throughout participating schools, according to the study's findings. A nearly universal reach (89%) was found for basic resources, such as cell phones; however, more sophisticated educational tools were widely accessible but only partially integrated (Table 1).

State of the Art of Technology Integration

Table 1: Technology Resources and Usage in Social Studies Classrooms

Technology Resource	Available (%)	Regularly Used (%)	Effectively Integrated (%)	Mean Hours/Week
Desktop Computers	67	23	12	2.1
Laptops	34	18	8	1.8

Technology Resource	Available (%)	Regularly Used (%)	Effectively Integrated (%)	Mean Hours/Week
Tablets	12	7	3	0.9
Interactive Whiteboards	8	4	2	0.5
Projectors	45	28	15	3.2
Internet Access	78	31	18	4.6
Educational Software	23	11	6	1.4
Mobile Phones	89	56	22	5.8

Source: 2024 Field Survey; *Note: Effective integration is defined as purposeful pedagogical use aligned with learning objectives*

According to the data, there is a significant disconnection between the resources that are accessible and their level of integration with pedagogy. Although 67 percent of schools had desktop computers, only 12 percent of them were successfully integrated into Social Studies curricula. With their fair levels of integration and extensive coverage, mobile phones presented the best chance for success. The reasons behind these trends were revealed through qualitative data. Teachers discussed how computers were often outdated, malfunctioning, or prohibited for use due to security concerns. In the words of one educator:

'Although the lab does feature computers, the majority of them are outdated and inoperable. We seldom use them in our normal lessons because we are afraid they will be stolen, even when they are in use. (Interview with Teacher #14)'

Teacher Beliefs and Implementation Challenges

According to teacher polls, instructors generally had positive opinions about using technology, but they also had serious concerns about the difficulties in implementing it. The results revealed the complex interplay between situational and motivational constraints in the context of educational technology adoption, as presented in Table 2.

Table 2: Teacher-Reported Barriers and Facilitators to Technology Integration

Factor	Significant Barrier (%)	Minor Barrier (%)	Neutral (%)	Minor Facilitator (%)	Major Facilitator (%)	Mean Score*
Infrastructure	68	22	6	3	1	1.47
Training	54	28	12	4	2	1.72
Technical Support	61	24	10	4	1	1.60
Time Constraints	49	31	15	4	1	1.77
Administrative Support	23	18	34	19	6	2.67

Factor	Significant Barrier (%)	Minor Barrier (%)	Neutral (%)	Minor Facilitator (%)	Major Facilitator (%)	Mean Score*
Student Readiness	15	25	28	24	8	2.85
Financial Resources	72	19	6	2	1	1.41

Source: 2024 Field Survey; Scale: 1 = Major Barrier, 5 = Major Facilitator

Ninety percent of the instructors said that infrastructure was either a major or minor barrier to their job, making it the most important obstacle. Among the infrastructure issues was unstable electricity. Eight hours per week, poor internet connectivity (only 31% of schools reported having dependable internet access), and a lack of physical space for integrating technology.

Another difficulty was a lack of financial resources. Participating schools often had an average yearly technology budget of GH¢ 2,400 (about US\$200), which was inadequate to enable them to acquire, maintain, or update necessary technology. Administrative interviews verified this, with one principal remarking,

"Our budgets only cover pencils and paper, but we want to be technologically advanced." Even a computer and the internet are beyond our means (Administrator Interview #7).

Interviewees, including those with simple projectors and cell phones, provided numerous instances of creative usage of existing resources. One teacher's method served as an example of this, saying:

'Using my smartphone, I view historical occurrences. At internet cafés, students connect their phones to showcase their studies. "It does work, but it is not ideal" (Teacher Interview #23).

These two served as the foundation and catalyst for the start of professional growth. Only 34% of the instructors had received formal ICT training in the previous three years, despite 82% of them expressing a need for technology training. Higher levels of integration were observed among teachers who had received training compared to those who had not ($t = 4.23$, $p < 0.001$; $d = 0.68$).

Student Learning Outcomes

The research comparing traditional versus technology-assisted teaching approaches revealed notable variations in learning outcomes, but the impact sizes varied significantly. Table 3 displays the findings.

Table 3: Comparative Learning Outcomes Analysis

Learning Outcome	Traditional Instruction (n=600)	Technology-Enhanced (n=600)	t-value	p-value	Cohen's d	95% CI
Content Knowledge	68.4 ± 12.3	71.2 ± 13.1	3.42	0.001**	0.22	[1.15, 4.45]
Critical Thinking	62.1 ± 11.8	66.8 ± 12.4	5.24	<0.001***	0.39	[2.91, 6.49]
Digital Literacy	45.3 ± 14.2	58.7 ± 15.6	12.18	<0.001***	0.89	[11.22, 15.58]
Collaboration Skills	59.4 ± 13.5	64.1 ± 14.2	4.57	<0.001***	0.34	[2.69, 6.71]
Engagement Levels	71.2 ± 16.4	78.3 ± 17.1	5.78	<0.001***	0.42	[4.88, 9.52]

Source: 2024 Field Survey; Note: ***p < 0.05, **p < 0.01, *p < 0.001

Digital literacy showed the most significant increase in impact size, although technology-enhanced instruction showed a moderate effect size (d = 0.89). This outcome was not surprising, as the most direct way to develop digital skills was through the integration of technology. When it came to utilizing digital resources, critically assessing online content, and creating digital content, students in computer-embedded classrooms outperformed their counterparts in traditional classrooms by a significant margin. Students' participation, focus, and excitement in problem-based learning sessions integrated with technology increased noticeably, and the level of engagement also had a statistically significant effect (d = 0.42). Classroom observations corroborated these quantitative findings, showing that engagement in technology-integrated sessions was 23% higher than in traditional instruction (t = 6.12, p < 0.001). Critical thinking cognitive skills also exhibit a moderate effect size improvement (d = 0.39), suggesting that technology integration improves higher-order skills. Technology-enabled classrooms also performed better on tasks requiring the synthesis, analysis, and evaluation of information from multiple sources, while content-area knowledge gains were less pronounced (d = 0.22).

Factors that Affect Successful Implementation

The analysis identified several characteristics that distinguish successful technology integration schools from those with implementation challenges.

Administrative Support: Implementation rates were 340% higher in schools with significant administrative support for technology integration than in those without (t = 8.91, p < 0.001). Teachers were empowered to experiment with new technology due to the provision of valuable tools and policy support by helpful administrators.

Professional Learning Communities (PLCs): Schools that established a PLC with an emphasis on technology integration showed the most significant gains. To overcome

implementation obstacles, PLCs promoted resource sharing, problem-solving, and mutual assistance.

Partnerships Elsewhere: The success of technological initiatives depended heavily on cooperation with regional and international NGOs. These partnerships provided the schools with access to resources, training, and technical support that they would otherwise be unable to afford.

Student Leadership: Educational institutions that utilized students as peer mentors or technology instructors experienced greater success with implementation. Student tech teams established lasting tech support networks by assisting instructors and fellow students.

Incremental rollout: Compared to schools that attempted rapid changes, those that adopted more gradual or incremental approaches to technology use were more likely to achieve long-lasting results.

Contextual Factors and Challenges

Through a qualitative study, several contextual elements were identified as having an impact on the success or failure of technology integration.

Barriers related to infrastructure: The most significant practical barrier was identified as the lack of a dependable electrical source. Weekly 8-hour power interruptions hindered gadget charging and disrupted planned tech activity. As stated by one educator:

"You are about to use computer resources to prepare a lesson when the power goes out. When children are disappointed, you feel as though you have failed them (Teacher Interview #19).

Connectivity: Only 31% of schools had dependable connectivity for educational purposes, despite 78% of them having internet access. Slow speeds and frequent outages hampered technology integration.

Sustainability of Resources: The upkeep and replacement of equipment presented challenges for several schools. The gadgets were typically rendered inoperable for extended periods of time if technical assistance was not provided.

Cultural aspects: Some community members expressed doubt about the use of technology for conventional instruction. Once neighborhood people witnessed the students' excellent outcomes, these anxieties were somewhat allayed.

Discussion

Theoretical Implications

In limited-resource situations, the results provide a deeper understanding of the theory of technology integration, particularly within the context of the TPACK framework. Without physical and systemic infrastructure and support systems, it was found to be challenging for teachers to integrate their strong pedagogical and technological skills with their subject matter understanding (Mishra & Koehler, 2020). The study's conclusions support the broader TAM model, which takes into account both individual perceptions and contextual influences (Rodriguez et al., 2022). The study also confirms the contribution of opinion

leaders and early adopters to the adoption of technology in classrooms. It also shows that, regardless of people's reasons, resource limitations might slow the rate of adoption (Chen & Zhang, 2023).

Practical Implications

The improvement in learning that was observed demonstrates that, when used effectively, technology integration can enhance learning outcomes in settings with limited resources. However, the findings suggest that technology is not a panacea for educational issues. Students will be better prepared for future professions and further education, resulting from notable improvements in digital literacy. These are advantageous results in the realm of technology that are not included in the conventional liquid paper-style services. With 89% of people owning a cell phone, there is a significant opportunity for creative mobile learning interventions that transcend the constraints of conventional infrastructure. In these situations, mobile-first tactics might be more scalable and sustainable than computer-based solutions.

Policy Implications

From the findings of the study, priorities are recommended with consideration for Ghana's educational system and other comparable low-tech environments, including poor nations. Investing in infrastructure is necessary for people and businesses to integrate technology, as they require dependable power and internet connections. Legislators need to allocate as much funding to infrastructure as they do to gadgets.

Teacher Training: Given the clear link between effective tool use and training, professional development ought to be just as crucial as investing in technology.

Models of Sustainable Funding: The meaningful use of technology cannot be supported by the present school finances. It might also be necessary to use alternative funding sources, such as public-private partnerships. Policies should include a staggered implementation strategy, allowing schools to adopt this plan gradually without immediate compliance.

The fact that content-area knowledge gains were less pronounced indicates that while technology can be a valuable tool for delivery, it does not necessarily improve traditional academic learning. The findings of this study provide credence to Clark's (2012) assertion that teaching has a greater impact on students' academic performance than technology.

Limitations and Future Research

Interpreting these results requires considering several constraints. Because the study was limited to the Northern Region, its conclusions might not be as applicable to other regions of Ghana or sub-Saharan Africa as a whole. The long-term sustainability takes nine months to capture. Triangulation with observed data helped to partially offset response bias that may have been introduced by using self-reported data for some metrics. Future studies

should use more objective metrics to assess learning outcomes and technological integration.

To understand how these attitudes and behaviors evolve, longitudinal research should also be incorporated into future studies. The high rate of smartphone ownership and the ability to circumvent infrastructural restrictions make mobile learning strategies a worthy area for further research in the future. Additionally, studies should investigate how to scale up successful interventions and assess the cost-effectiveness of different approaches to technology integration.

Conclusion

The substantial benefits of critical thinking and technology use in this situation imply that, even in environments with limited resources, successful technology integration can have a substantial impact on education. However, the tiny effect sizes for "traditional" academic achievements should serve as a reminder that technology should be viewed as an adjunct to, rather than a replacement for, successful "traditional" teaching methods. It has been determined that administrative support, professional development, and infrastructure are essential success factors that give legislators and leaders in education clear direction. The study clearly demonstrates that simultaneous attention to technical, pedagogical, and institutional aspects is essential for successful technology integration.

Moreover, the study demonstrates the adaptability and creativity of educators and learners when reusing existing technology for educational purposes. The prevalence of mobile phone ownership and a positive attitude toward using technology in the classroom indicate unrealized potential that may be realized with the correct rules and funding. Although Ghana is making strides in digitizing education, this paper offers some evidence-based guidelines for creating long-lasting, contextually relevant technology integration strategies. The study's conclusions also apply to comparable educational systems in sub-Saharan Africa and other emerging nations with comparable opportunities and problems. Realistic thinking, financial planning, and an awareness that technological adoption is a slow process that necessitates the cooperation of all parties to drive this trip. Education technology has excellent potential to enhance learning and prepare students for digital futures, provided it is adequately supported and utilized.

Recommendations

Administrative Leadership: To support programs involving technology integration, school administrators require specialized, focused training. As it turned out, one important aspect of success that may change with staff growth was the observation process.

Community Engagement: Utilize technology integration to ensure that local support is established and cultural challenges are addressed. Community-based after-school technology centers would enable learning to continue after school hours.

Partnership: Taking an active part in establishing alliances with private sector companies,

NGOs, and telecommunications companies in order to enhance school resources and offer technical assistance.

Sustainability Planning: Rather than being discrete project phases, acquisition, maintenance, replacement, and professional development should all be incorporated into comprehensive technology plans.

Mobile-First Solutions: Leverage the high percentage of smartphone owners by implementing mobile learning strategies that do not require student device provision. This strategy could facilitate the growth of digital literacy and offer a workaround for infrastructure obstacles.

Blended Learning Models: Rather than attempting to digitize everything completely, think about using hybrid or blended learning models (the term "blended" is less throat-hacking) that combine traditional teaching methods with digital tools and technologies.

Systems for Peer Learning: Establish a student technology mentor program to offer leadership development opportunities and alleviate instructors of some technical assistance duties.

Curriculum Integration: Ensure that technology is used not only for its technological purposes but also for educational purposes that support curriculum objectives.

Conflict of Interest

The author has no conflict of interest.

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