

Adjusting to Technology-Mediated Instruction in the Midst of the COVID-19 Pandemic in Ghana: Exploring the Experiences of Senior High School Teachers and Students of Social Studies

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Abstract:-The COVID-19 pandemic and its resulting school closures threw traditional methods of curriculum delivery into disarray in Ghana. The call for technology-mediated instruction was thus considered a necessity in almost all educational institutions in Ghana. Nonetheless, given the challenges often associated with technology adoption in most parts of Africa, this study purported to find out how social studies teachers and students adjusted to technology-mediated instruction in the midst of the COVID-19 pandemic. To this end, the explanatory sequential mixed-method was employed as the research design. Data gathered from 379 students and 14 teachers of social studies revealed that, in adjusting to technology-mediated instruction amid the COVID-19 pandemic, they were faced with challenges, such as inadequacy of laptops, computers, projectors, and unstable internet connectivity. Despite these difficulties faced in responding to technology-mediated instruction, social studies teachers and students adjusted to technology-mediated instruction through the use of technological means and aids such as zoom classes, audio-visual recordings, Wi-Fi connectivity, emails, and ICT laboratories in their respective schools. Also, teachers and students suggested that adequate technological resources such as computers, laptops, projectors, and stable internet connectivity, among others, must be provided to facilitate the integration of technology into social studies teaching and learning. In light of these findings, the study recommends that government and non-governmental establishments, as well as parents, should provide adequate infrastructure to boost the teaching and learning of social studies.

Keywords:- Social studies, technology-mediated instruction, ICT integration, adjustment strategies, COVID-19.

I. INTRODUCTION

Globally, the coronavirus pandemic wreaked havoc in the latter half of 2019 and the first half of 2020, leaving no stone untouched. Every element of human life has been affected by the COVID-19 pandemic's ramifications (UNESCO, 2020; Niranjana, 2020; Evans, 2020). Apparently, the education sector was equally not spared (Wajdi et al., 2020; UNESCO, 2020; Pujari, 2020; Dimopoulos et al., 2021). Notably, social studies education in senior high schools appears to have been hit hard by the pandemic. The consequence of this was the truncation of education, particularly in developing countries (TUAC Secretariat Briefing, 2020), like Ghana. Nonetheless, mitigation strategies in technologically advanced countries were so effective that they were able to escape most of the disastrous consequences that would have affected their educational systems (Zhang, 2020; Sahu, 2020; Sun et al., 2020). This was due to the fact that they had the infrastructure and practically all of the required prerequisites in place to contain the COVID-19-related contingencies that impacted the educational arena.

Ghana, a developing country, did not give up in any way; instead, she stepped up her efforts to educate her populace through multiple media, such as the Joy Learning Programme, Class Act on Citi TV, GES 24-hour Virtual Learning Programme on GTV, among others, in order to minimize the pandemic's undesirable influence on education (Adarkwah, 2021; Bariham, Ondigi, & Kii, 2021). Thus, the method of teaching was restructured all over the world as a result of these changes (Ali, 2020; Murgatrot, 2020). While there was a revitalization of the use of information and communication technology (ICT) and other electronic devices as a method of teaching in developed countries (Haleem et al., 2020; Mustafa, 2020; Di Pietro et al., 2020; Zhang, 2020; Sahu, 2020; Sun et al., 2020), there was a dilemma in developing countries (Haleem et al., 2020), such as Ghana. The reason for this is that, even though there was a lot of talk about incorporating ICT into the teaching strategies, there was little attention paid to it until the outbreak of COVID-19, which led to a lot of lockdowns and school closures in Ghana.

The antecedent challenge was that little was known that this moment could come in this generation; hence, the gradual incorporation of ICT into social studies teaching and learning. Following the effort to use virtual alternatives to curtail the adverse impact of the pandemic, Ghana, like many other countries, was challenged (Di Pietro et al., 2020; Winthrop, 2020). Thus, many studies (Bariham, Ondigi, & Kiio, 2021; Fidelis, & Onyango, 2021; Adarkwah, 2021) emerged and spanned through the use of ICT and other electronic methods of instruction, which unraveled several challenges (Bariham, Ondigi, & Kiio, 2021; Fidelis, & Onyango, 2021; Adarkwah, 2021), with no exception to the social studies discipline. Teachers and students, on the other hand, were left with little choice but to use electronic media for teaching and learning (Tiruneh, 2020; UNESCO, 2020; Eickelmann & Gerick, 2020). Despite the fact that various academics have studied the methods of teaching employed during the pandemic's peak, little emphasis has been paid to how social studies teachers and students were adjusting to these teaching strategies. Consequently, the focus of this study is to unearth how social studies teachers and students are adapting to the new and urgent teaching strategies necessitated by the COVID-19 pandemic.

A. STATEMENT OF THE PROBLEM

The curriculum of various disciplines, including social studies, is delivered using ICT or virtual learning platforms through the adoption of the internet, laptops, and technologies like radio and television broadcasts amidst the COVID-19 pandemic. Thus, online learning has evolved so quickly (Ali, 2020; Mustafa, 2020). This, however, is not without challenges due to the inadequacy of the remote learning infrastructure, teachers' lack of expertise, knowledge gaps, and the complex environment, to name a few (Murgatroid, 2020; Sinha & Bagarukayo, 2019; Bean, et al., 2019). Regardless of the impediments, governments and civil society organizations endeavored to ameliorate the pandemic's harmful effects by ensuring the continuity of teaching and learning in several disciplines (Zhang et al., 2020), including social studies (Bariham, Ondigi, & Kiio, 2021). Consequently, in Africa and Asia, for instance, proposals were made for charitable organizations, educational providers, and the government to improve the construction of educational information by providing students and teachers with standardized home-based teaching and learning resources, conducting online teacher training, and supporting academic research into online education in order to alleviate the online difficulty experienced by some students and teachers amid COVID-19 (Bariham, Ondigi, & Kiio, 2021; Huang, Liu, Tlili, Yang, & Wang, 2020).

Other propositions include providing learners with alternative learning and education, allowing them to be more flexible in their studies (Huang, Liu, Tlili, Yang, & Wang, 2020), as a wake-up call for students and teachers to embrace the new form of teaching and learning due to learners' interests and dispositions (Ali, 2020). Besides, regardless of preparation and planning steps, the moment has come to avoid the excessive requirements that come with adopting things (Ali, 2020). There is still a need for educational institutions to promote online teaching and

learning. During the lockdown and school closures, teachers were urged to cooperate and exchange know-how as well as digital infrastructure for online instruction (Czerniewicz, 2020; Wahab, 2020; Hodges et al., 2020). This was aimed at minimizing the impact of the COVID-19 pandemic on education. Nonetheless, they were beset with challenges as indicated above, making it difficult for them to integrate technology into teaching and learning.

Regardless, it is imperative to reiterate that, as a result of COVID-19, the method of teaching altered, which coincided with technological advancements and was widely embraced globally (Ali, 2020). The concern now is how social studies teachers and students are adjusting to these vicissitudes and proposals in order to become accustomed to them. These circumstances necessitate this research to explore how social studies teachers and students in Ghanaian senior high schools are adjusting to the virtual or ICT methods of teaching and learning. On the basis of the foregoing, this research attempted to answer the following research questions:

- How are Ghanaian senior high school social studies teachers and students adjusting to ICT or technology-mediated instruction in the face of the COVID-19 pandemic?
- What kind of support is required for social studies teachers and students to adjust to technology-mediated instruction?

B. Purpose of the research

The study sought to uncover how social studies teachers and students in Ghanaian senior high schools are adjusting to the adopted and proposed virtual teaching and learning methods, particularly in social studies. The study also sought to unearth the necessary assistance that will allow both social studies teachers and students to be fully equipped and prepared in the event of a pandemic strike in the future. It also purported to draw the attention of stakeholders to be aware of some of the urgent needs of the current education system or structure so as to devise strategies to ensure good delivery of social studies content in Ghanaian senior high schools so as to realize the continuous development of good citizenship through social studies education.

II. LITERATURE REVIEW

A. Condition Precedence for Teachers in Dealing with Virtual Engagement in the Teaching and Learning Process or Technology-Mediated Instruction

It must be emphasized that to successfully incorporate technology into education and make functional the associated skills and opportunities it makes available to learners in the twenty-first century requires a willingness to embrace changes in teaching and learning (Ertmer & Ottenbreit-Leftwich, 2019; Lillejord, Brte & Ruud, 2018). However, it cannot be disputed that while some institutions may have infrastructure, this alone does not always alleviate all problems because there may be a deficiency of time for class preparation coupled with an unsupportive curriculum design. As a result, having the resources does not always imply smooth ICT adoption, but rather the presence of complementary variables such as facilitator readiness (Vrasidas, 2015) and the ability to

adjust to new ways of doing things. It is also reliant on teacher confidence, which is derived through the management of tools and learning platforms (Ali, 2020). Thus, teachers' readiness to adopt the new alternative in class delivery is critical in delivering social studies content and, as a result, has an impact on students' performance. Teachers must be empowered to gain confidence in order to facilitate the integration of ICT into content delivery (Yuen & Ma, 2002). This is because, in the midst of COVID-19, teachers without access to the internet at home were disadvantaged in assisting students with online studies (World Bank, 2020) during national lock downs and school closures. Consequently, there is a pressing need to support teachers socially, morally, and technically so that they can conduct online classes efficiently and freely (Yuen & Ma, 2002), particularly in emergency situations like the COVID-19 pandemic.

B. Conditions Precedence for Students in Coping with Virtual Interaction in the Teaching and Learning Process

Various attributes, such as digital natives and generations, have been allied with students in the twenty-first century (Ali, 2018; Prensky, 2001). Their era coincides with the widespread adoption of ICT, resulting in students' dependence on it (Ali, 2018). Students are proficient at exploiting technological gadgets such as tablets and mobile phones in executing diverse tasks such as visiting social media and texting as a result of their preliminary acquaintance with technological devices worldwide (Shava, Chinyamurindi, & Somdya, 2016; Jesse, 2015). This gives a picture of students' willingness to accept and embrace the use of ICT (Willms & Corbett, 2003). However, there is a common misperception that today's youth are fully versed in the usage of ICT (World Bank, 2020; Sommer, 2014). Therefore, without sufficient direction for teachers and students, things may go awry, as there may be a lack of theoretical knowledge base, resulting in students demonstrating limitations in their use of technology. Due to low internet connectivity and economic and regional inequities, most students have difficulty accessing online learning (World Bank, 2020).

C. The Influence of Virtual Interaction on Pedagogy and Learning

It is an undeniable fact that in recent times, there has been a paradigm shift in the way educational aims and aspirations are tackled (Ali, 2020). The so-called paradigm shift keeps trending because ICT has become a basic qualification in the twenty-first century as a result of its significant role in everyday life. Besides, it has changed the methodology of lesson delivery by encouraging students to participate in group activities (Haddad, 2003). Its online teaching and learning provide significant opportunities for learner engagement, collaboration, and control over their own learning pace (Ali, 2020). This may be the major academic discourse with respect to the development of twenty-first-century skills. In addition, students have access to a motivating and encouraging learning atmosphere as well as self-directed learning options. With the use of ICT, a teacher's role shifts from teacher-centered to learner-centered, transforming the teacher into a facilitator (Geng,

Law & Niu, 2019). This obviously enables learners to own their learning. So, teachers play an important role in the transition to the new medium of education (Buabeng-Andoh, 2015). Therefore, they must adjust to the new norm in order to maintain continuity in education while dealing with the upheaval. Students' perceptions and ambitions, however, are significant since they have a direct impact on their learning environment and style (Buabeng-Andoh & Totimeh, 2012; Mirzajani, Mahmud, Fauzi Mohd Ayub, & Wong, 2016). Despite the difficulties in planning and implementation, the unprecedented challenge offered by the emergence of COVID-19 has put a mammoth effort on students and teachers to accept online learning (Ali, 2020). Perhaps this has contributed in some way to the process of carving out the ideal 21st century learner.

III. RESEARCH METHODS

A. Research Design

An explanatory mixed-method research design was employed to investigate how social studies teachers and students adjusted to and coped with the virtual or new norm or method of teaching and learning as a result of the COVID-19 pandemic. To Creswell (2015), explanatory mixed-method intends to explain quantitative results with qualitative data.

B. Population and Sample

The population consisted of senior high school form three (SHS3) students from Hohoe Municipality and Kpando Municipality in Ghana's Volta region. In total, four schools were chosen, two from each of the municipalities. In total, 379 students (78+101+89+114) were randomly selected from a sample frame of (363+681+610+783) from the selected schools to voluntarily complete the questionnaires using the Slovincs formula: $n = N/1+N(\alpha)^2$. Where n is the sample size, N is the sample frame, and α is the confidence level, with a 90% confidence level (0.10). Accordingly, all social studies teachers in the selected schools who were present at the time of the data collection participated in the study. In total, 14 social studies teachers took part in the research.

C. Data Collection Instrument and Procedures

In this study, data was collected using questionnaires, an interview guide, and a focus group discussion guide. Responses to the survey were made up of closed-ended and open-ended questions. The items on the adjustment strategies adopted by social studies teachers and students were measured on a four-point Likert scale, ranging from 1-Rarely (R), 2-Sometimes (ST), 3-Often (O), and 4-Very Often (VO). With respect to suggestions on adjustment and integration of ICT or technology-mediated instruction in social studies education, the items were measured on a five-point Likert scale, ranging from 1-Undecided (UD), 2-Strongly Disagree (SD), 3-Disagree (D), 4 Agree (A) and 5 Strongly Agree (SA). Following the completion of the questionnaires, 15 students were chosen at random from each of the selected schools to participate in a focus group discussion. This was done to gain insight and explanation of their questionnaire responses. It was also meant to elicit unexpected reactions that hitherto could not have been

elicited solely through questionnaire responses (Taylor, Bogdan & DeVault, 2015).

D. Data Processing and Analysis

The quantitative data was processed and analysed using the statistical package for social sciences (SPSS) version 25. Descriptive statistics, specifically, means and standard deviation were used in analyzing the responses. A mean value of above 2.5 was considered as respondents adjusting to virtual learning strategies or use of ICT in teaching and learning; while a mean value of above 3.0 was considered a suggestion for adjustment and integration of ICT in the teaching and learning of Social Studies respectively; while a standard deviation of 1.0 signifies variations in responses. The interview and focus group discussion were analyzed using interpretative focused coding.

The data from the interviews and focus group discussions were transcribed and organized into themes. By identifying a group of primary studies and translating their findings into well-organized classes of themes, this aids in enhancing the methodological integrity of studies that are fundamental to the research process (Levit, 2018).

Table 4.1. Adjustment strategies for incorporating ICT into teaching and learning social studies amid COVID-19

Adjustment strategies				
Item: I use	T/S	N	M	SD
email in sending and receiving assignment	T	14	2.53	.97
	S	379	2.51	.85
projectors in teaching	T	14	2.57	.98
	S	379	2.53	.87
zoom in teaching	T	14	2.55	.95
	S	379	2.58	.98
WhatsApp in sending content to students during lockdown	T	14	2.57	.98
	S	379	2.51	.96
audio visuals recordings in teaching and learning	T	14	2.54	.91
	S	379	2.57	.89
television in teaching and learning	T	14	2.52	.94
	S	379	2.67	.85
Laptop and computers in teaching and learning	T	14	2.61	.83
	S	379	2.74	.84
school is connected to the internet	T	14	2.83	.81
	S	379	2.81	.79

Source: Field survey, 2022

Where T = Social Studies Teachers, S= Students, N= Total number of respondents, M=Mean, SD=Standard deviation

The accompanying are extracts from interviews and focus group discussions held with social studies teachers and students to learn more about their replies to the surveys. As stated below, the answers to interview questions and conversations in focus group discussions are reflective of the questionnaire responses. The respondents were concerned about the lack of virtual learning resources such as laptops, desktop computers, projectors, and internet connectivity, among other things. Some teachers responded that they had implemented some steps in their own capacity during the school closure due to COVID-19, but that they were

IV. RESULTS AND DISCUSSIONS

A. Research Question 1: How are senior high school social studies teachers and students adjusting to technology-mediated instruction in the face of the COVID-19 pandemic?

The purpose of this research objective was to discover the means through which teachers and students are adjusting to technology-mediated instruction in the teaching of social studies at various senior high schools in the Volta region of Ghana. The quantitative data, presented in table 4.1, revealed that for both teachers and students, emails for information dissemination (M = 2.53 and 2.51; SD =.97 and .85), the use of projectors (M = 2.57 and 2.53; SD =.98 and .87), zoom classes (M = 2.55 and 2.58; SD =.95 and .98), audio-visual recordings (M = 2.54 and 2.57; SD =.91 and .89), internet connectivity (M = 2.83 and 2.81; SD =.81 and .79), and laptops and computers (M = 2.61 and 2.74; SD =.84 and .84) were sometimes used as adjustment strategies in dealing with the new trend of teaching and learning social studies in Ghanaian senior high schools in the midst of the COVID-19 pandemic.

confronted with the issues already highlighted. They are, however, still trying to acclimate to the virtual learning or engagement that has become the norm in recent years. When questioned about the lessons learned from the COVID-19 pandemic and how they are adapting, the teachers gave the following responses:

It is a staggering task to be without a laptop and audio-visual recorders. We do, however, have access to an ICT laboratory that is connected to

the internet. However, the infrastructure is insufficient to support social studies teaching and learning. Our student population has been growing every year, despite the fact that we have the same facilities and ICT equipment as before, with no additions, and we are plagued by breakdowns and the incapacity to fix the broken ones. Nonetheless, by utilizing the ICT lab, I am able to engage my students in accessing assignment questions via email to complete and submit them to me. We are coping because COVID-19 has made it mandatory to adopt ICT.

Apart from those pursuing elective ICT, almost every student is pursuing core ICT, hence the ICT lab is continually in use. So, in order to integrate ICT into social studies and to keep students up to date on the usage of ICT in social studies, I give them assignments to complete and submit online through their personal emails utilizing the ICT lab after school. After that, I mark them and return them by email.

When I give them homework, they work on it independently at times and in groups at other times and send to me via email. After that, I download each assignment, pass comments and give scores, and send them back to them through email, either individually or in groups, depending on how I directed them. This is just to familiarize students with the usage of ICT in learning social studies while attempting to combat the present and future pandemics. This is made possible by the fact that we have an internet-connected ICT lab.

These proclamations are a result of the shift from traditional to virtual teaching and learning methods. These are examples of how information and communication technology (ICT) can help people communicate more effectively (Stephens, 2007). These clearly show that electronic learning is made feasible by the use of internet technology in providing a wide range of solutions for knowledge acquisition and academic performance (Rosenberg, 2001). As a result, it is not unexpected that academicians see virtual learning via the internet as a way to address the need for information accessibility (Talebian et al., 2014).

It is also worth noting that students have come to understand or accept the reality that emergencies are bound to occur at some point in one's life, and that they usually have disastrous effects on human activities, including schooling. They are conscious of the fact that they too must adjust in order to cope with the new trend. This willingness and preparation paint a hopeful picture, implying that in times of emergency, such as the COVID-19 pandemic, education will be unaffected that much. This is because, despite the hurdles, there appears to be some enthusiasm among students toward the use of virtual learning. The following are some student reactions to the ways they have been adjusting to the new norm:

One advantage of electronic learning is that it may be replayed, especially if it is recorded visually or audibly. When compared to physical interaction, which cannot be replayed after a statement has been made, constantly playing back improves my knowledge of particular topics significantly.

It is fascinating when I am required to submit an assignment to my social studies teacher using the school's ICT lab. It is something I genuinely enjoy doing and would do all day and night if I could.

I prefer it when content is provided via television since it allows me to see pictures, which enhances my knowledge. As a result, I enjoy learning with technological devices.

It is fantastic to be in a projected Zoom class. I have gained a lot of knowledge and experiences. It makes me realize that, even if my teacher is unable to return on time due to a travel, he can still make time for us regardless of where he or she is. We have done so in our school assembly hall and during the COVID-19 school closure when our social studies teacher engaged us in zoom and WhatsApp lessons.

These responses paint a positive image of the students' openness to change. It is a sign that, in the event of a crisis, stakeholders in education will be able to handle it with relative ease. This is because students may utilize ICT to acquire information in a variety of ways while also improving their personal skills. Even though ICT was used in teaching and learning prior to the outbreak of COVID-19, it was only used to a limited extent, particularly in underdeveloped nations (Fraillon et al., 2019), like Ghana. Nonetheless, the contrasting picture painted for students and instructors while dealing with the repercussions of the COVID-19 lockdown and school closure (Huber & Helm, 2020), is driving them to use online or virtual learning and teaching, which is reviving the use of ICT tools for problem solving and learning (Eickelmann & Gerick, 2020). These initiatives, in our opinion, should continue. Other responses are as follows:

On his laptop, our social studies teacher occasionally gives us videos. Unfortunately, due to the high-class size, having the entire class watch such films or photographs takes quite some time. I wish our school had a projector dedicated to social studies classes so that we could present such films and photographs on a larger scale so that we will feel comfortable watching and actively participating in teaching and learning, which will, of course, improve our academic achievement.

When we are given tasks to watch videos online and write reports, I find it quite enjoyable because it removes the abstractness and difficulty in conceptualizing abstract concepts, consequently improving my comprehension and memory.

When compared to the physical connection with the teacher, watching or listening to recorded content is quite enjoyable. We can replay all of our social studies teacher's recordings for a better understanding when we practice in our assembly hall because they are all recorded. That is why I am at ease with technological devices. This practice, in my opinion, should never be stopped.

With reference to the afore responses, even though there are problems with using virtual teaching and learning, the fallouts of COVID-19 indicate that, students are still driven to adjust to the new norm. These findings are also consistent with the important role that student motivation plays in enhancing the effectiveness of electronic learning (Ames, 1990). It was also discovered that how people perceive the use of technology in enhancing and enabling learning process has an impact on how students use technology in teaching and learning (Davis, 1989). There is evidence to suggest that perceived usefulness is beneficial to performance (Ong & Lai, 2006). This is consistent with the findings of Venkatesh and Davis (2000), who found that students' intentions to utilize the internet were positively influenced by their perceived utility. The ramifications of this have to do with students' willingness to use online learning, which is based on their belief that, online learning may help them achieve academic excellence. It is also worth mentioning that perceived usefulness is dependent on both course delivery and tutor characteristics (Teo, 2010). Not all, but simplicity of use is a critical precondition for perceived usefulness, which is consistent with the technological acceptance paradigm. As a result, it is not unexpected that, according to the technology acceptance model, perceived utility is a factor of students' acceptance of mobile technology. With this, it is easy to argue that students are accepting technology in teaching and learning at an exponential rate, brightening the future. The following are some other students' responses:

Allowing students to use electronic devices in class to learn is fine with me because it will help me improve my academic performance or achievements. They have been quite helpful in fostering my understanding of most concepts.

I enjoy learning through ICT because it allows me to learn at my own pace.

These assertions are consistent with those of Al-Fraihat et al. (2020), who claim that the successful deployment of electronic learning programs as a result of COVID-19 and its accompanying use of internet technology as a means of curriculum delivery have increased student satisfaction. It is also important to note that, as a result of the use of ICT, the paradigm has shifted from teacher-centered to learner-centered (Hong, Chiu, Huang, & Chiu, 2021). Whether there will be any amount of triumph depends on the students' willingness and ambition to deal with the system (Shahzad et al., 2020; Sahu, 2020). As a result, ICT has the possibility of being integrated into the teaching and learning of social studies, assuming that students are willing to cope regardless of the accompanying hurdles. Therefore, we must not give up but rather intensify our efforts.

B. Research Question 2: What kind of support is required for social studies teachers and students to adjust to technology-mediated instruction?

With respect to the suggestion for adjustment and ICT integration, teachers and students suggested that, in addition to laptops and computers ($M = 3.13$ and 3.50 ; $SD = .60$ and $.84$), audio-visual recorders ($M = 3.38$ and 3.23 ; $SD = .73$ and $.81$), and televisions ($M = 3.66$ and 3.71 ; $SD = .53$ and $.61$), social studies studios or laboratories ($M = 3.16$ and 3.30 ; $SD = .72$ and $.86$) should be offered to encourage social studies study. The study also highlighted the need for workshops and in-service training for teachers to familiarize themselves with the use of technology so that they can fully adapt to the new teaching and learning trend brought about by COVID-19, which is also a way of integrating ICT into social studies teaching and learning.

Table 4.2. Adjustment strategies and suggestions for incorporating ICT into teaching and learning social studies amid COVID-19

Suggestions for adjustment and ICT integration				
Item: Provision of	T/S	N	M	SD
Social studies studio or laboratory	T	14	3.16	.72
	S	379	3.30	.86
Laptops/computers	T	14	3.13	.60
	S	379	3.50	.84
projectors	T	14	3.37	.96
	S	379	3.14	.70
Workshops for teachers	T	14	3.41	.49
	S	379	3.78	.75
In-service training	T	14	3.85	.58
	S	379	3.69	.65
audio-visual recorders	T	14	3.38	.73
	S	379	3.23	.81
enough televisions	T	14	3.66	.53
	S	379	3.71	.61
Students should be allowed to use ICT gadgets	T	14	3.81	.52
	S	379	3.57	.59

Source: Field survey, 2022

Key: T = Social Studies Teachers, S= Students, N= Total number of respondents, M=Mean, SD=Standard deviation

Further insights from teachers’ qualitative data indicate the reason why virtual learning has not been an intrinsic element of curriculum delivery in underdeveloped nations like Ghana for such a long time. It is encouraging to see that teachers are always willing to adjust to new developments in education delivery. Their level of preparedness in the expectation that the necessary resources will be made available is truly remarkable. It also emphasizes the fact that teachers are becoming more cautious when it comes to establishing resilience strategies for future crises. The following are some of the recommendations made during the teacher interview when asked about some of the steps that should be put in place to make it easier for them to adjust to and use ICT in social studies teaching and learning amidst COVID-19:

To stay up with the 21st century crisis, I believe senior high schools should be provided with a social studies laboratory that is equipped with modern technology such as laptops, computers, televisions, and projectors, in addition to traditional teaching and learning resources.

The world is changing at a fast pace. As a result, I believe the curriculum should evolve in a similar manner in order to deal with the new norm and the crisis of the twenty-first century by providing virtual resources for the education sector, particularly, social studies education.

In my opinion, there is no other alternative than using ICT in the teaching and learning of social studies. It is no longer a choice, but a necessity due to our current crisis.

There should be periodic workshops and in-service training for teachers, particularly those who were not exposed to ICT during their teacher education so that they can be equally integrated

into the ICT education value chain. It will also keep us up-to-date on new trends and developments in virtual interaction and learning.

These comments show that the emergence of COVID-19 has necessitated the global education system to move away from traditional modes of instruction and toward electronic methods of instruction (Tarhini et al., 2017). When implemented, the above suggestions will help to reach students on a wider platform via online teaching and learning using information and communication technology, with students adopting virtual content delivery of disciplines (Wahab, 2020; Hodges et al., 2020), including social studies. It should be noted that, as a result of the COVID-19 pandemic, there is still a need to maintain social distance, hence the blending of face-to-face and virtual interaction. It is critical, then, that educational institutions continue to implement virtual learning technologies by making them available (Crawford et al., 2020). This will make it easier for teachers and students to interact, with positive consequences for students' academic achievement (Tawafak et al., 2020), thereby allowing ICT to be integrated into the teaching and learning of social studies, as has long been advocated for.

Students also provided some excellent recommendations for assisting them in fully adjusting to virtual learning. They stated that when social studies is taught not only abstractly but also virtually, utilizing audio-visuals and or videos, they are able to understand concepts more easily since their memory capabilities are increased. As a result, the following suggestions were made:

Sir, it is fascinating when social studies is taught in such a way that you are provided with visuals and movies that stay in your mind forever, allowing you to form inferences and make learning a part of your life. As a result, all essential resources, such as computers,

projectors, and high-speed internet access, should be made available to support the course.

Given that we do not always have the luxury of time to visit particular sites where some of the concepts we learn exist, there are some concepts that should be taught through videos. I believe that additional resources should be made available in order to merge old and current teaching methods so that photos and videos are better integrated into the teaching and learning of social studies and other subjects.

Understanding is aided by combining abstract teaching and learning with virtual teaching and learning. To make this happen, we will need enough televisions, personal computers, and laptops, among other things.

It is unfortunate that we are not allowed to use our phones or laptops to learn in school at this level; otherwise, I wouldn't be asking certain questions in class. It would only take a few seconds for me to type in a question into a search engine, and practically all of the information I require would appear for my consumption. I believe that we should be permitted to use our personal technological devices in school for educational purposes.

I believe that students should be permitted to use electronic devices such as video or audio recorders in school, but only under the supervision of school officials, who should require students to use them at regular intervals purely for academic purposes.

When I am at home and have access to my phone and laptop, I frequently use the phone and, on occasion, a hotspot to connect to a laptop for research. As a result, I believe that cell phones and computers should be permitted at the pre-tertiary level, but they should be personalized and regulated by school authorities in order to aid research and self-learning.

These are thoughts on the claim that perceived delight has a tendency to increase students' desire to study using electronic means (Chen, Lu, & Wang, 2016). As a result, when students enjoy or have fun using electronic learning, they build good attitudes toward the simplicity of use and utility of electronic learning systems (Al-Aulamie et al., 2017), resulting in tremendous retention and learning experiences. In Taiwan, for example, Su and Chiu (2021) discovered that interactive movies were widely loved by learners, resulting in increased adoption and excellent electronic learning. In addition, students reveal the following in their responses:

Currently, a YouTube channel can teach you almost any topic in any discipline in the blink of an eye, as long as you have access to the internet or data. I believe that sufficient attention and

supervision are required to achieve this, allowing for more flexibility in learning.

When I am conducting my personal studies and find it tough to comprehend some concepts, I simply note them down so that if I am given the opportunity to use the ICT lab, I can conduct research to uncover everything I am generally curious about.

These responses are in line with self-efficacy, which is defined as one's belief in one's ability to organize and execute one's courses of action in order to achieve a set of goals and has the potential to affect one's acceptance of virtual or electronic learning. In other words, self-efficacy refers to one's ability to achieve something in a specific domain. This has an impact on decision-making, perseverance, and achievement (Schunk & Pajares, 2002). Students' performance is enhanced by the motivation surrounding the use of online learning that stems from good self-efficacy (Wang, Shannon, & Ross, 2013). They are also in line with knowledge acquisition, which is claimed to be a major factor in virtual learning adoption (Compton, 2013). Searching, identifying, as well as accessing new relevant knowledge are all part of acquiring knowledge (Alavi&Leidner, 2001). This also indicates that, unlike students in the past, students nowadays are ready to communicate their thoughts outside of the classroom with the rest of the world, and hence seek quality education that is grounded in reality (Prensky, 2010). As a result, they are prepared to develop and use technologies in their domain to share control and make decisions (Sanchez-Sepulveda et al., 2020). Therefore, there should be a link between skills and knowledge that corresponds to ICT control (Paes., 2017). Accordingly, effectively implemented electronic learning has a stronger impact on students' knowledge acquisition (Supriadi&Sa'ud, 2017). This is owing to the intrinsic benefits of electronic learning, such as accessibility, high-quality pictures, and the ability to repeat at any time and in any location without restriction (Moazami et al., 2014). In light of the current global crisis and the coronavirus, electronic learning stands out as a viable option for continuing education via the internet (Shehzadi et al., 2020).

C. A promising future for ICT integration in teaching and learning social studies amid the COVID-19 pandemic

Due to the emergence of COVID-19 and the way teachers are responding to the virtual medium of teaching and learning, there appears to be some optimism about the integration of ICT into social studies education. Despite the fact that the pandemic had a devastating impact on every aspect of social life, including education, particularly social studies education, there appears to be some monumental progress in the use of virtual learning, which, if continued, will bridge every barrier that will be detrimental to education's triumph or progress in times of crisis. This is because, as a way of adjusting to the new norm, teachers have shared a variety of strategies for using virtual teaching and learning in social studies. This was made possible by some available resources, which, while insufficient, were used to the best of their abilities, as stated above. During the

interview, the social studies teachers gave the following encouraging responses from teachers:

I occasionally request permission to utilize the ICT lab with my students after school. I have taught them how to use computers to send emails. I occasionally educate them on how to use the internet to find better knowledge, as well as how to find appropriate photos and videos to help students understand. Sometimes I just asked them to do some research and present it in class on certain topics.

I occasionally send students the content via email, instructing them to download it and write it in their notebooks for presentation.

After contact hours, I sometimes assemble my students in the assembly hall and allow them to watch some of the lessons I have recorded on a pen drive on the television at the hall while taking notes, after which I will mark and award grades. They started to enjoy it. I had always been with them, teaching them the importance of cultivating good concentration habits and paying close attention to electronic teachings, as well as how to take basic and brief notes.

We social studies teachers in this school occasionally use the ICT lab projector in the assembly hall, connect a laptop to the Wi-Fi, and have a Zoom class with our students. As a result, the projection takes place in the assembly hall, under the supervision of some teachers, while the lesson is delivered in the ICT laboratory. The only drawback is that our department lacks a projector, a laptop, or any other electronic equipment to facilitate these activities. So, we usually do this after we have made contact with our students, just to get them use to it while preparing for unanticipated problems.

I irregularly record tuition, either video or audio, and then save them to my pen drive, which I then plug into the school television for them to view and take notes on.

Many kids were unable to join my WhatsApp or Zoom classes during the school closure, so now that free Wi-Fi is available in the school, I believe I should take advantage of it to keep them up-to-date with online educational resources.

The issue is that students from low-income families are having difficulty obtaining digital devices in order to participate in online teaching and learning. During the school closure, I started Zoom and WhatsApp classes with my students, but many of them were unable to participate due to their backgrounds. But, God forbid, I imagine that by the time another pandemic strikes, they'll be in a better position to buy some gadgets. I'm only being hopeful so that, regardless of any crisis,

teaching and learning will not be hampered. So, using the ICT lab and my laptop, I believe now is the moment to train them in online teaching and learning.

With the aforesaid efforts by teachers to use virtual teaching and learning, the education sector will be positively impacted over time. This is because studies comparing students who are exposed to both virtual and physical methods of instruction and those who are only exposed to physical interaction have found that those who are exposed to both virtual and physical interaction have a corresponding enhancement in their academic performance over those who are only exposed to physical interaction. This is why Achuthan et al. (2017) argue that ICT is important in fostering reflective learning, broadening students' learning capacity, and improving knowledge retention. Similar findings suggest that if teachers continue to follow these trends, combining virtual learning with physical engagement, not only will we be able to combat the impacts of emergencies in education, but we will also be able to improve students' performance for the greater good. Therefore, there is a pressing need to make materials available that will help teachers to integrate ICT into teaching and learning, given that they have recognized its importance as a result of COVID-19 and are eager to adapt.

V. CONCLUSION

The analysis concludes that all the schools that took part in the study are facing issues in transitioning to virtual or the new norm or trend of teaching and learning that is necessitated by the emergence of COVID-19. These are due to the inadequacy of infrastructure as well as ICT and other electronic devices such as laptops, computers, projectors, and a social studies laboratory for teaching and learning. Despite this, some social studies teachers and students are able to adjust to the new norm during and after school closures by using WhatsApp and Zoom classes, particularly during the shutdown of schools amidst COVID-19. Following the return to school, some social studies teachers have revealed significant strategies in the face of inadequate facilities and infrastructure by utilizing the limited ICT laboratory resources and internet connectivity available in their schools, despite the fact that they were not specifically designated for social studies teaching and learning since the ICT facilities are used for both core and elective ICT subjects. Also, teachers and students have been able to use them to adapt to new needs in content or curriculum delivery, thereby embracing ICT or electronic teaching and learning of social studies.

VI. RECOMMENDATIONS

Grounded on the challenges faced by both teachers and students in adjusting to the new norm of curriculum delivery and their willingness to adjust and integrate ICT into the teaching and learning of social studies, this study recommends that the Ghanaian government and ministry of education, as well as civil society groups, charitable organizations, and non-governmental organizations, work together to provide adequate ICT infrastructure and other

electronic equipment for teaching and learning social studies. Parents, through the Parent-Teacher Association, should contribute to the provision of ICT infrastructure for various schools in order to promote ICT integration in the teaching and learning of social studies in order to keep up with the virtual or modern teaching and learning trend. This will relieve some of the strains on the present limited ICT infrastructure, which is mostly used for the core and elective ICT subjects rather than social studies teaching and learning. To enable teachers' and students' adjustment techniques and the integration of ICT into the teaching and learning of social studies in Ghanaian senior high schools, social studies studios or laboratories should be established in all schools and properly equipped with modern technology.

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