



Research Article

Senior High School Teachers' and Students' Perception about the Integration of Online Learning and Its Impact on Their Application of Technology in Teaching and Learning of Social Studies in Northern Region, Ghana

Iddrisu Bariham

Department of Humanities and Social Science Education, Faculty of Education, University for Development Studies, Tamale, Ghana
E-mail: iddrisu.bariham@students.ku.ac.ke

Received: 30 November 2021; **Revised:** 1 March 2022; **Accepted:** 1 March 2022

Abstract: The uptake of virtual learning blended with the traditional instructional pedagogies in Social Studies instruction among senior high school teachers in Ghana is developing rapidly. Grounded on Technology Acceptance Model (TAM), this study was commissioned to interrogate senior high school Social Studies teachers' and students' perceptions of online learning and its impact on their application of technology in teaching and learning. The research was purely quantitative, conducted in the Northern Region of Ghana, adopted a causal-comparative research design and administered a questionnaire to Social Studies teachers (N = 84) and senior high school students (N = 972) randomly sampled for the research. The internal consistency of the items on the questionnaires was validated using the Cronbach alpha formula, from which that of Social Studies teachers yielded $\alpha = 0.89$ and that of the students yielded $\alpha = 0.73$ respectively. The data were analyzed employing inferential and descriptive statistics supported by Statistical Package for Social Sciences (SPSS) version 22. The findings discovered that although Social Studies teachers and students had positive perceptions and motivation to use online learning, teachers' integration of technology into teaching and learning was low due to inadequate computers, lack of access to the internet, and limited ICT skills and that teachers' perceptions of online learning have no significant impact on their rate of integration of technology into Social Studies teaching and learning. Based on the findings, the study recommends teacher training, equipping senior high schools with relevant digital tools including the internet, subsidizing laptops for teachers and students, and curriculum reforms that create opportunities for the integration of online learning into teaching.

Keywords: blended learning, global awareness, learning management system, learning skills, learning outcomes, online learning, social studies

1. Introduction

Social Studies is a multidisciplinary subject that focuses on inculcating in newcomers' relevant know-how and skills, acceptable attitudes and values to deal with private and societal challenges. The subject is multidisciplinary one that selects ideas, principles, theories and generalizations from a range of disciplines including social sciences such as Geography, Economics, History, Government, Sociology, Religion, Law, Psychology, Philosophy and Civic

education and uses them to provide an explanation to problems and to find solutions to contemporary pervasive social issues. Essential elements of skills, knowledge, capabilities, theories and concepts from these disciplines are integrated into a subject that stands on its own (Ministry of Education, 2020). The aim of Social Studies is to train citizens to be competent, patriotic, honest, committed, accountable, ethical, capable and inclined to contribute to the community and national development in the spirit of democracy.

Society is dynamic and it keeps transforming rapidly. Globally, the nature of competencies wished to function efficaciously in the 21st century, which relies on information, keeps changing. To help produce necessary human assets to drive Ghana's development to meet the SDG 4 (quality education for all) by 2030; the Ghana Beyond Aid Agenda; and the African Union Agenda 2063; knowledge, capabilities and values from Social Studies are vital and require greater attention. The integration of virtual learning strategies into the traditional Social Studies teaching and learning especially at the senior high school level can improve the acquisition of knowledge, and digital literacy, facilitate a better understanding of concepts and develop learning skills that can improve learning outcomes of students. Online learning is a critical part of ICT in education and entails the application of internet technologies in the form of the remote environment to stimulate effective teaching and lifelong learning (Johnson & Brown, 2017). Virtual learning is a pedagogical innovation in teaching that integrates technology. The traditional face-to-face instructional pedagogy does not necessarily provide comfort where students can learn at their own pace compared to online learning. The emerging online modules offer learners options to select times that will favour them with their course schedule minimize costs involve in the construction of classrooms and lecture halls and expand access to quality education and lifelong learning (Atieku-Boateng, 2021).

The UN Sustainable Development Goal 4 advocate for nations to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UNESCO, 2015). As a result, most countries are now adopting the blended or hybrid approach to teaching and learning where traditional face-to-face teaching and learning go hand in hand with virtual or online learning. Successful adoption and integration of online learning rely upon countless elements including the perceptions that teachers and learners have about the innovation. Negative attitudes towards online learning may eventually yield low adoption of the innovation and vice versa. Attitude and perception are important concepts in behaviour and social judgments, and hence critical issues that influence decision making (Venkatesh, et al., 2003) cited in Otieno (2017). Becta (2004) observed that negative attitude was a barrier towards integration of technology into teaching and learning, while Kubiak and Halakova (2009) discovered that learners' attitude towards the use of ICT in teaching and learning was mainly based on its perceived impact. Similarly, Dawes and Selwyn (1999) suggested that integration of online learning to a large extent depends on teachers' and students' attitudes towards their use. Learners' perception of online learning can be dictated by several factors. Keller and Cernerud (2002) cited in (Tagoe, 2012) identified such variables to include gender, age, background, computer knowledge and experience, individual learning style, access to technology, and technology acceptance as predictive variables that influence technology acceptance by learners and teachers. Technology Acceptance Model (TAM) by (Davis, 1989) outlined two main factors that determine whether technology such as online learning will be accepted by its potential users, namely; perceived usefulness and ease of use. The main issue in this model is its emphasis on the perception of potential users. Behavioral intention is a factor that influences people to adopt online learning as an instructional pedagogy.

To end poverty, boost shared prosperity, and achieve the Sustainable Development Goals, we must use development financing and technical expertise to effect radical change. We must work together to ensure that all children have access to quality education and learning opportunities throughout their lives regardless of where they are born, their gender, or their family income (UNESCO, 2015). The main goal of integration of technology into Ghana's education reform is to improve the learning outcomes of all students regardless of their age, gender, location, disability or family income. Within school settings, learners' performance is often measured in two main ways, namely: formative assessment and summative assessment. Morris et al. (2005) analyzed the correlation between online learning activities on students learning outcomes and concluded that frequent interaction with the course content, to spend more time participating in seminars and comments in forums are those that positively affect students' learning outcomes. Chou et al. (2010) defined active interaction in online learning activities to include the types of interaction such as learner-self, learner-learner, learner-teacher, learner-content, and learner-interface. Learning Management Systems (LMSs) currently offer relevant tools that allow interactive activities in Social Studies courses, such as forums, messages, online forms of assignments, exercises in wiki format, virtual classrooms among others (Nguyen, 2015). Macfadyen and Dawson (2010) constructed

a regression model whose findings showed a tight correlation between the study results to the number of forum posts, and the number of completed assignments. Considering the role of teamwork, Mitchell and Honore (2007) reported that collaborative learning has a positive impact on online learning outcomes of students. However, Kayode and Teng (2014) review the impact of the interaction on learning outcomes, with interactive activities including reading the contents of the blog, interacting with other learners, and engaging in the blog context with 342 learners who participated in the experiment. The findings showed that this form of interaction between the students together has no significant impact on student learning outcomes. However, the literature on teachers' and students' perceptions of integration of online learning into social studies teaching and learning and how it impacts students' performance in the northern region of Ghana is relatively scarce.

Besides General Education is not as general at all as senior high schools. Social Studies classrooms are now required to include General Education students and students with special needs. This type of classroom is known as an inclusive classroom which is flexible enough to permit differentiated instruction to meet the needs of all students. Differentiated instruction is an effective strategy to use in inclusive classrooms to meet the needs of all students (Patterson et al., 2009) cited in Cannon (2017). Shepherd and Acosta-Tello (2015) extrapolated the need to customize lessons for students based on their prior knowledge and individual needs. They also described a three-phase lesson comprised of a basic lesson for remedial students, a core lesson for average students, and an enrichment lesson for advanced students. However, it appears meeting the needs of students of varying abilities, needs, levels, and interests within the confines of one Social Studies classroom could be problematic. Schools have failed to leverage the benefits of technological tools and we see huge gaps between the promise and performance of the technology.

2. Problem statement

Over the years, there has been an expanded application of technology particularly online learning to improve students' learning outcomes in educational establishments across the globe. Recent data from the literature indicates a high range of use of blended and virtual learning in the advanced countries compared to the developing ones including Ghana. The Government of Ghana over the years has rolled out a plethora of interventions aimed at expanding access to quality education for all and lifelong learning possibilities to meet the SDGs four by 2030. In addition, the long-term development plan for Ghana dubbed Ghana Beyond Aid Agenda seeks to create a wealthy, sustainable, inclusive, empowered and resilient Ghana (Government of Ghana, 2019). This requires attitudinal change among Ghanaians. New sets of capabilities and values such as honesty, integrity, patriotism, hard work, discipline, respect, self-reliance, spirit of volunteerism, collaboration amongst social partners, transparency and accountability, digital and information literacy amongst others are required to enforce the vision.

Ghana's Education Strategic Document (2018-2030) targets to embark on numerous instructional reforms including the integration of ICT into teaching and learning in schools. However, evidence from quantitative and anecdotal data indicated that the adoption and integration of virtual learning among senior high schools instructors in Ghana is still developing. Several factors ought to be responsible for the relatively low uptake of online learning among secondary schools in Ghana. Successful adoption and integration of online learning depend on countless factors including the perceptions which instructors and learners have about the innovation, teachers' and students' access to ICT tools, availability of school-based ICT policies, instructors' and rookies' ICT skills, availability of time among other factors. For instance, terrible attitudes in the direction of online learning may yield low adoption of the innovation and vice versa. Specifically, current data on the appreciation of senior high schools' social studies teachers and students towards online learning in the northern region of Ghana has been notably scarce. It was against this background where this research was carried out to investigate senior high school Social Studies instructors' and learners' perceptions of online learning and its impact on their application of technology in teaching and learning.

3. Research questions

The study formulated two questions to direct the research, namely;

- i. What is the perception of senior high school teachers and students on the integration of online learning into teaching and learning of Social Studies?
- ii. To what extent do senior high school teachers integrate technology into Social Studies teaching and learning?

4. Research hypothesis

The following null hypothesis was designed and examined at 0.01, 0.05 and 0.10 levels of significance.

H₀1: Teachers' online learning perception does not significantly affect their application of technology in Social Studies instruction.

5. Literature review

5.1 Meaning of online learning

Online learning also called virtual learning has been given various definitions by various educational technologists relying on a variety of contexts and their personal instructional philosophies. For instance, online learning according to (Bliuc et al., 2007; Osguthorpe & Graham, 2003; Nguyen, 2015) as quoted in Nguyen (2015) refers to lessons delivered over the internet, blended learning, or any learning supported by digital tools such as TV, radio, video, PowerPoint, zoom meetings, google meetings or social media platforms. Online learning provides opportunities for distance learning. Online learning is a type of distance education or distance learning. The California Distance Learning Project (CDLP) views distance learning as teaching and learning that connects students with academic resources and instructors without expecting them to be physically present at a learning institution. From the above definition, online learning means any academic activity supported by applied technologies such as the internet, video, zoom meetings, google meetings, radio, Learning Management Systems, social media among others. Online learning is a broad concept that consists of several educational environments and approaches. Online learning could be asynchronous online guides (where freshmen work at a distance with no category meeting time), synchronous online programmes (where the instructor and all college students have instruction online simultaneously), or hybrid learning (where standard face-to face-instruction is combined with online interaction). Learning is not all about teaching, but huge volumes of academic work involve researching, discovering, finding, questioning, reading, selecting, writing, creating, drawing and writing texts (Gourlay & Oliver, 2018).

To achieve quality education for all, countries should ensure increasing access must be accompanied by strategies to improve the quality and relevance of education and lifelong learning. Education institutions and programmes must be adequately and equitably resourced with a safe, learning environment, and easily accessible facilities; an adequate number of teachers and educators of quality using student-centered, active and collaborative pedagogical approaches including technology to provide quality education for all (UNESCO, 2015). Presently, cloud technology has made it viable for quality instructions to be delivered online reaching millions of novices throughout the globe. Voice cloning is becoming the new normal in digital education. To develop Ghana's human capital to become competent, globally competitive and engaged citizens, senior high schools should adopt online learning strategies. Online learning does not only equip learners with the 21st-century skills, but social skills and digital literacy which are core competencies in Social Studies education. Examples of core competences Social Studies seeks to inculcate in learners include critical thinking, problem solving, collaboration, communication, creativity, leadership, digital literacy, global citizenship among others (Ministry of Education, 2020). In the Social Studies learning environment, virtual learning provides students high probability to acquire basic literacy, technological literacy, research skills, multicultural literacy, global awareness, interpersonal skills, personal responsibility, and collaboration which are vital for national development. To achieve a sustainable application of technology to education to further boost government digitalization agenda, the Government of Ghana have rolled out a number of interventions such as one teacher one laptop policy (where 280,000 laptop distribution to teachers across the country is ongoing), rural telephony and digital inclusion project, girls in the ICT project, deployment of Learning Management Systems (LMS) to 25 public tertiary institutions, digitalization of lesson plans among others (Government of Ghana, 2022).

5.2 Benefits of online learning

The literature on the advantages educators and freshmen derive from online learning has generated mixed findings. The most mixed of all studies is the Meta-analysis conducted by Lack (2013) cited in Nguyen (2015). Lack pointed out that in some studies, students engaged in virtual or blended learning performed better, however in others, they recorded worse achievement, and for some, there had been no significant variations between the performance of students taught online and those taught with the Traditional Methods of Instruction (TMI). However, Lack failed to provide sufficient evidence to determine whether online learning was substantially more or much less advantageous and efficient than the TMI. Some researchers have discovered positive findings associated with virtual learning to include increase in learners' achievement, inspire students to learn, improve students' participation, provide immediate feedback, and increase cooperative learning, among others. For instance, Parris (2012) in their mixed experimental study that applied PeerWise software online tool to support Political Science students reported a significant improvement in students' achievement, strong motivation to learn, and a positive attitude towards online learning.

Similarly, Sedega et al. (2017) carried out a quasi-experimental study on the impact of Computer Assisted Instruction (CAI) on Ghanaian senior high school students' performance in mathematics. The findings discovered a widespread improvement in the students' performance in mathematics. Navarro and Shoemaker (2000) concluded that learners' fulfillment for online learning has been as good and better than TMI regardless of the characteristics of students. This assertion could be problematic as student's background such as gender, geographical location and socioeconomic status greatly influence their propensity to access the internet for meaningful online learning. Means et al. (2010) cited in Nguyen (2015) reported that a study by the US Department of Education (2017) involving a systematic review of literature across 1000 empirical studies on online learning from 1996-2008 concluded that significant variations in students' achievement were higher in learners taught with a blended learning approach. This finding strongly justified the need for blended learning as an effective approach to quality instruction delivery. The study also identified the combination of time spent, pedagogy, and curriculum in virtual learning format yielded the observed variations in students learning outcomes. However, no sufficient evidence existed to conclude that online learning was a superior medium of instruction than the TMI.

Thiong'o et al. (2014) conducted a study on the impact of computer-based stimulation on secondary school students' understanding and performance on the magnetic effect of electric current, found Computer Based Instruction successful as an instructional strategy. The study adopted Solomon-Four-Quasi Experimental Design which involved a comparison between two controlled and two experimental groups. They concluded that the use of computer-assisted instructional strategies in various subject areas and across many countries has given positive results. Notwithstanding the above, other studies recorded unfavorable findings associated with online learning. For example, in a survey commissioned to compare students' performance in Microeconomics courses, Brown and Liedholm (2002) observed that learners engaged in virtual learning performed significantly worse than those taught with the traditional methods and that the variations were more pronounced for complex test items and less pronounced for elementary test questions. They added that male students' achievement was significantly greater than female students taught with the traditional method. However, there had been no vast differences in performance for the sexes when taught with online strategy. Other studies have discovered sex as a moderating variable for students' performance when comparing virtual learning with the TMI. Harmon and Lambrinos (2012) hypothesized that students' performance might differ from graduate students who are more mature with superior, unbiased and independent learning skills. Applying panel data and fixed-effect model to eliminate biases from the observable variables, it was discovered that the impact of online learning was not significantly different from the TMI strategy for graduate students but could have a positive impact on students' performance. This implies that mature learners with higher independent studying abilities including senior high school learners are appropriate candidates for online learning. However, if effectively planned and blended with TMI pedagogies, online learning can benefit all students regardless of their level of education.

6. Methodology

This research was a purely quantitative study conducted in 12 senior high schools in the northern region of Ghana. Out of 54 public senior high schools in the study area, 12 schools (representing 22.2%) were randomly sampled for

the study. The target population comprised 7,786 form 3 students and 107 Social Studies teachers, respectively. Using Yamane (1967) statistical procedure for sample size determination, Social Studies teachers (N = 84), and form 3 students (N = 972) were sampled, respectively. Data were mined using questionnaires designed on five points Likert scale with ten close-ended items each for the Social Studies teachers and the students to measure their perceptions of online learning and how it influences the teachers' application of virtual learning in Social Studies education. Before data mining, the internal consistency of the items on the questionnaires was validated using Cronbach alpha formula, from which that of Social Studies teachers yielded $\alpha = 0.89$ and that of the students yielded $\alpha = 0.73$, which were standard and were accepted for the study. McMillan and Schumacher (2010) concluded that a reliability coefficient of $\alpha = 0.70$ and above is applicable to surveys. The data gathered from the study area were cleaned, sorted, edited to ensure fullness and coded in connection with the study goals for analysis. The data was analyzed with descriptive statistics (percentages, mean, and standard deviation) and inferential statistics (T-test) using the Statistical Package for Social Sciences (SPSS) version 22.

7. Ethical considerations

Research ethics were observed at every stage of the study. Research allowance was obtained from the regional education managers and senior high school authorities before the fact's series in sampled schools. Participants' rights had been revered throughout the study, they were not forced nor monetarily prompted to take part in the study. Rather they participated voluntarily with rights to pull out at any time. Informed consent was sought from all the respondents so that they participated voluntarily. Pseudonymization and anonymization were used to shield the identity of the participants who took part in the study. Information for the respondents were kept confidential and utilized for lookup functions only. Finally, the author declared no conflict of interest. There were no funding sponsors who had a position in the design of the study, in the facts collection, analyses, or interpretation of the data and in deciding whether to publish the final report or not.

8. Limitations

The data gathered via this quantitative study was restricted to 12 public senior high schools in northern region, Ghana. Therefore, the findings from this research cannot be generalized to private schools in the region. The demographics of Social Studies teachers and students within the schools involved in this research may not correlate with the demographics of other regions in Ghana. Therefore, generalization of the findings of this study to the entire country could be problematic due to the limitations stated.

9. Presentations of results and discussion

To answer research question 1, "What is the perception of senior high school teachers' and students' on the integration of online learning into Social Studies instruction?", a questionnaire designed on a five-point Likert scale was distributed to teachers and students to complete after which they were collected, sorted, clean and coded for analysis.

9.1 Teachers' perceptions of online learning

Social Studies teachers' perception of online learning was measured using a five-point Likert scale designed with ten close-ended items. The mean perception scores were then computed where mean score between 1 and 2.4 shows a negative perception of online learning integration while mean scores above 2.5 to 5 indicated a positive perception towards online learning. The perceptions of teachers towards the use of online learning activities in terms of the Perceived Usefulness and ease of use are shown in Table 1.

Table 1. Social Studies teachers' perceptions of online learning integration into Social Studies teaching and learning

| Online learning | N | Mean | Standard deviation |
|---|----|------|--------------------|
| Online learning offers useful resources to support students learning | 84 | 4.30 | 0.803 |
| Virtual learning platforms support students and Social Studies teachers to access authentic and current information | 84 | 4.62 | 0.558 |
| Online learning provides rich learning environments within which to design activities for Social Studies students | 84 | 4.44 | 0.499 |
| Online learning support students to acquire creativity, critical thinking, and collaboration | 84 | 4.23 | 0.855 |
| Online learning accommodates different learning styles of Social Studies students | 84 | 4.20 | 0.690 |
| Online learning can support introduce virtual learning experiences and introduce innovative pedagogy in education | 84 | 4.40 | 0.623 |
| Senior High Schools Social Studies curriculum should create opportunities for online learning | 84 | 4.51 | 0.549 |
| Curriculum for Social Studies teachers' training in the universities and Colleges of Education should provide opportunities for online learning | 84 | 4.56 | 0.869 |
| Online learning makes me productive and facilitate authentic learning | 84 | 4.43 | 0.664 |
| I need more training on online learning | 84 | 4.48 | 0.828 |

From Table 1, complete average perceptions of teachers in the direction of online learning stood at (Mean = 4.417, SD = 0.694). This was very excessive and implies a high positive attitude towards online learning. Specifically, online learning offers beneficial sources to aid students' learning (Mean = 4.30, SD = 0.803), virtual learning platforms help students and Social Studies instructors to access authentic and current information (Mean = 4.62, SD = 0.558), online learning supply-rich learning environments within which to design activities for Social Studies students (Mean = 4.44, SD = 0.499), online learning support students to accumulate creativity, sequential thinking, and collaboration (Mean = 4.23, SD = 0.855). This implies that teachers had a positive attitude towards online learning. These findings confirmed the findings of Mahdum et al. (2019) whose research in Indonesia concluded secondary school teachers had a tremendous understanding and motivation towards online learning activities, however, the teachers nevertheless encounter challenges like constrained ICT skills and lack of access to digital tools including the internet. Also, senior high schools' Social Studies curriculum should create opportunities for online learning records (Mean = 4.51, SD = 0.549), and Social Studies curriculum for teacher training universities and Colleges of Education should provide possibilities for online learning (Mean = 4.56, SD = 0.869). This implies that the teachers will like to see Social Studies curriculum at the senior high schools and teacher-training institutions create possibilities for online learning. However, I will need further training on online learning records (Mean = 4.48, SD = 0.828). This means teacher professional development programmes should be organized to build teachers' capacity on online learning and teaching strategies. This finding confirms those from Miima (2014) whose study in Kenya observed that the integration of technology into learning by Kiswahili instructors was ineffective due to limited ICT capabilities among teachers and learners. This, therefore, calls for capacity building for students and teachers on how to use online learning to improve students' learning achievements in line with the SDG four which advocates for quality education for all and lifelong learning.

9.2 Students' perceptions of online learning

The students' attitudes and perceptions towards online learning was evaluated by categorizing and computing individual mean scores as shown in Table 2. The students' perceptions towards the use of online instruction within the framework of the Perceived Usefulness and ease of use are shown in Table 2.

Table 2. Students' perceptions of online learning integration into social studies teaching and learning

| Online learning | N | Mean | Standard deviation |
|--|-----|------|--------------------|
| Online learning can help me to perform well in my exams | 972 | 3.80 | 1.338 |
| Online learning can provide opportunities to learn and collaborate with my colleagues | 972 | 3.45 | 1.426 |
| Online learning can motivate me to learn and so I like it | 972 | 4.00 | 1.248 |
| Online learning can make me participate actively in Social Studies instructions | 972 | 3.94 | 1.339 |
| Computers scare me and hence I do not follow instructions during online learning | 972 | 1.99 | 1.305 |
| Online learning may facilitate easy understanding of concepts and application of knowledge | 972 | 4.11 | 1.158 |
| I do not have enough ICT skills for online learning | 972 | 3.00 | 1.506 |
| Our Social Studies teacher does not integrate online learning and hence I have no idea how to learn online | 972 | 3.05 | 1.598 |
| There are no enough computers in my school to support online learning | 972 | 2.82 | 1.537 |
| Online learning facilitates cooperative and peer learning among students | 972 | 3.45 | 1.426 |

Results presented at Table 2 indicated the universal common perceptions of students online learning perceptions stood at (Mean = 3.361, SD = 1.389). This was excessive and implies a positive mindset towards online learning. To be specific, online learning can help improve my overall performance in exams (Mean = 3.80, SD = 1.338), virtual learning can offer opportunities for collaborative learning (Mean = 3.35, SD = 1.426), online learning can inspire me to learn (Mean = 4.00, SD = 1.248), online learning can extend students' participation in Social Studies instruction (Mean = 3.94, SD = 1.339), online learning may facilitate easy understanding of concepts and application of knowledge (Mean = 4.11, SD = 1.158). The above results imply students had a high positive attitude towards online learning. These findings reconciled with those from Malekani (2018) whose research among secondary school students in Tanzania concluded that students' perception of online learning was positive. However, most of the students who took part in the study indicated that they did not have enough ICT skills for online learning (Mean = 3.00, SD = 1.506), and not enough computers in schools to support online learning (Mean = 2.82, SD = 1.537). The issue of limited ICT skills among instructors and learners and shortage of computers and different digital infrastructure including dependable internet in general has been a common problem facing online learning in several educational institutions in Africa including Ghana.

9.3 Testing of hypothesis

To measure the impact of Social Studies teachers' perceptions of online learning on their technology integration, the scores of teachers' computer perceptions were grouped into 2 strands, namely: those with high (positive) perceptions and those with low (negative) perceptions and the effect tested by means of independent t-tests with online learning perceptions being the independent variable and integration of technology being the dependent variable. Preliminary analysis was carried out to ensure that there were no violations of linearity, assumptions of normality, and homoscedasticity as presented in Table 3.

Table 3. Descriptive statistics of impact of teachers' online learning perceptions on their technology integration

| | | Group statistics | | | | |
|-------------------------|-----------------|-------------------|----|-------|----------------|-----------------|
| | | Perception status | N | Mean | Std. deviation | Std. error mean |
| Total integration score | Low perception | | 11 | 31.89 | 10.273 | 1.202 |
| | High perception | | 73 | 35.36 | 18.250 | 5.503 |

Teachers had been regarded to have low appreciation if they strongly agree, disagree or remain impartial to the components of integration of online learning in Social Studies instruction. On the other hand, those with excessive grasp either agree or strongly agree to the components of online learning integration. The rate of technology integration was evaluated using the complete ratings computed from a Likert scale. The descriptive statistics are recorded in Table 4. Table 3 demonstrates the mean score of instructors with high (positive) appreciation was 35.36 with a standard deviation of 18.250. Instructors with low (negative) appreciation registered a rating of 31.89 with a standard deviation of 10.273. An additional computation was conducted to establish whether variations existed between the mean scores of instructors' virtual learning perceptions and how it impacted on their application of online learning into their instructional processes. The analysis was carried out employing a t-test. The findings in Table 4 illustrates the t-test value, the degree of freedom (df), the level of significance, variations in the mean, standard error of the variations and the confidence interval at 95 percent.

Table 4. T-test on impact of teachers' online learning perception on technology integration

| | | Independent samples test | | | | | | | | |
|-------------------------|-----------------------------|---|-------|------------------------------|-------|-----------------|-----------------|-----------------------|---|-------|
| | | Levene's test for equality of variances | | t-test for equality of means | | | | | | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean difference | Std. error difference | 95% confidence interval of the difference | |
| | | | | | | | | Lower | | Upper |
| Total integration score | Equal variances assumed | 11.062 | 0.001 | 0.93 | 82 | 0.355 | 3.473 | 3.734 | -3.95 | 10.90 |
| | Equal variances not assumed | | | 0.61 | 10.97 | 0.550 | 3.473 | 5.632 | -8.92 | 15.87 |

From Table 4, the mean difference was 3.473, which is not significant at 0.01, 0.05 and 0.10 levels. This implies that Social Studies teachers' online learning perceptions have no significant impact on their rate of application of

technology to their instruction. These findings contradict those by Ngatia (2015), whose research in Kenya extrapolated that teachers' ICT attitudes have an amazing influence on their rate of technology integration in teaching and learning. Maybe other factors influence teachers' propensity to adopt and utilize online learning to support the learning outcomes of their students. Mwendwa (2017) identified teacher-training, time, availability of relevant software and hardware, pedagogical issues, and familiarity with computers as factors that affect teachers' capacity to integrate technology into instructional processes in schools. Davis (1989) in his Technology Acceptance Model (TAM) summed up those factors into two, namely, perceived usefulness and ease of use. For learners to derive maximum benefits from new technology application in instruction, relevant skills are a necessity. In this case, learners and instructors have to be equipped with relevant knowledge and skills to be able to use and benefit from online learning.

9.4 Extent of integration of online learning by social studies teachers

To answer research question 2, "To what extent do senior high school teachers integrate technology into the teaching and learning of Social Studies?", questionnaires with 10 items were given to instructors to pick from five alternatives to illustrate the stage at which online learning was incorporated in their instruction as illustrated in Table 5.

Table 5. Extent of integration of online learning in social studies teaching and learning

| Online learning strategy | Not at all | Hardly ever used | Once a week | Several times per week | Daily |
|---|---------------|------------------|---------------|------------------------|---------------|
| Application of computer tutorials | 45 (53.6%) | 30 (35.7%) | 5 (6.0%) | 4 (4.7%) | 0 (0.0%) |
| Application of instructional stimulations | 27 (32.1%) | 24 (28.7%) | 10 (11.9%) | 17 (20.2%) | 6 (7.1%) |
| Application of educational CDs | 33 (39.3%) | 22 (26.2%) | 17 (20.2%) | 9 (10.7%) | 3 (3.6%) |
| Application of educational videos | 41 (48.8%) | 32 (38.2%) | 5 (6.0%) | 4 (4.8%) | 2 (2.2%) |
| Use of YouTube and WhatsApp | 38 (45.5%) | 30 (35.7%) | 7 (8.3%) | 7 (8.3%) | 2 (2.2%) |
| Application of Smart phones | 20 (23.8%) | 23 (27.4%) | 9 (10.7%) | 22 (26.2%) | 10 (11.9%) |
| Use of computers to support assessment of learning | 18 (21.4%) | 25 (29.8%) | 7 (8.3%) | 12 (14.3%) | 22 (26.2%) |
| Use of internet to access information | 25 (29.8%) | 17 (20.2%) | 7 (8.3%) | 19 (22.6%) | 16 (19.0%) |
| Use of computer drills and practice | 49 (58.3%) | 22 (26.2%) | 6 (7.1%) | 6 (7.1%) | 1 (1.2%) |
| Use of computer storage devices to store students work and monitor their progress | 36 (42.9%) | 26 (31.0%) | 3 (3.6%) | 5 (6.0%) | 14 (16.7%) |

Table 5 illustrates that over 50% of instructors do not use computer tutorials, and drills and practice. Almost 50% of the teachers were not using academic videos and social media systems like YouTube and WhatsApp to support

students learning. Critical observation of the other items indicated not used at all by the instructors or hardly ever used. This implies that the extent of utility of online learning by the instructors was low. These findings are consistent with those from Gulbahar and Guven (2008) survey in Turkey that examined Social Studies instructors ICT perceptions and usage and found that though teachers had a positive perception of virtual learning, they were not in a position to adopt it due to limited access to digital tools and limited in-service training opportunities. Nguyen (2015) listed power fluctuations, lack of internet, lack of ICT training for teachers, conservative curricular, insufficient laptops, computers and projectors, and rigid timetables as barriers to online learning. Bariham et al.'s (2020) study on Ghanaian senior high schools' teachers' preparedness for the application of online learning concluded that most classrooms were not connected to electricity to support virtual learning and schools were not adequately equipped with ICT resources and lacked local ICT in education guidelines to guide virtual learning. Teachers had content and pedagogical knowledge but lack ICT technical skills do deliver online learning. Teachers' positive perceptions and motivation to adopt online learning need to be maintained, and if possible increased. But the reality is that, positive perception and motivation are not the only variable that can propel the effective integration of online learning into teaching and learning in schools. There is a need for governments in Africa to tackle all barriers to virtual learning in educational institutions to pave the way for teachers to blend online learning with the traditional face-to-face methods to deliver quality education for all and lifelong learning. The Government of Ghana's one teacher one laptop initiative launched in 2020/2021 academic year is a novelty and must be commended. However, such projects should be extended to the students and incorporate capacity building for teachers and students.

10. Discussion

Table 1 showed teachers had positive attitude towards the integration of online learning into Social Studies teaching and learning. Specifically, majority of the teachers accepted that online learning offers beneficial sources to aid students learning, help students and Social Studies instructors to access authentic and current information, supply-rich learning environments within which to design activities for Social Studies students, and support students to accumulate creativity, sequential thinking, and collaboration. Also, they advocated that senior high schools' Social Studies curriculum should create opportunities for online learning and that Social Studies curriculum for teacher training universities and Colleges of Education should provide possibilities for online learning. This implies that the teachers will like to see Social Studies curriculum at the senior high schools and teacher-training institutions create possibilities for online learning. However, the author will need further training on online learning records. This means teacher professional development programmes should be organized to build teachers capacity on online learning and teaching strategies. These findings confirm Salehi and Salehi's (2012) previous results derived by a study in Iran, which found that secondary school language teachers reported the insufficient technical support, and the restricted access to Internet and ICT tools as major barriers preventing them from integrating technology into the curriculum. Kafyulilo et al. (2015) found that science and mathematics teachers encountered some barriers while using technology in their teaching such as large class sizes, lack of time and lack of all the relevant technological tools.

In Ghana, Osei et al. (2014) presented similar conclusions when they examined teachers' perceived barriers to integration of online learning in secondary schools in Ghana, and found insufficient time, lack of in-service training on ICT usage, teachers' limited ICT knowledge, the inaccessibility of computers and management's ignorance about teachers' use of ICT in classrooms. In Singapore's context, Looi et al. (2013) identified critical determinants of why their ICT-enhanced learning could be sustained and scaled across different schools. These reasons include creating the readiness of teachers and students through enculturation and capacity building efforts, ongoing evaluations and creative renewals of intervention, emphasizing routine use of intuitive technology from the outset, focusing on collaborative learning; tapping on the existing curriculum and co-designing lessons to prepare for the shift of ownership from the researchers to practitioners as well as the alignment with the school's strategic plan (Yancy, 2013).

Results in Table 2 illustrates students had positive attitude towards online learning. They believe online learning can help improve students' overall performance in exams, offer opportunities for collaborative learning, inspire them to learn, extend students' participation in Social Studies instruction, and facilitate easy understanding of concepts and application of knowledge. The above results imply that students had a high positive attitude towards online learning.

These findings reconciled with those from Malekani (2018) whose research among secondary school students in Tanzania concluded that students' perception of online learning was positive. However, most of the sampled students indicated that they did not have enough ICT skills for online learning (Mean = 3.00, SD = 1.506), and not enough computers in schools to support online learning (Mean = 2.82, SD = 1.537).

Similarly, from Table 4, the mean difference between teachers online learning perception and their level of technology integration was 3.473, which is not significant at 0.01, 0.05 and 0.10 levels. This implies that Social Studies teachers' online learning perceptions have no significant impact on their rate of technology application to teaching and learning. These findings are similar to those from Tagoe (2012) whose research on students' perceptions on integration of e-learning into teaching and learning at the University of Ghana discovered that male students were more likely to use internet than female students and that students preferred blended learning and web-supplemented subjects in future than web dependent and fully online courses. In a similar study, Sarpong et al. (2022) examined online instruction during the COVID-19 pandemic; perception of university students in Ghana reported that most students were not satisfied with online learning. Level 300 students and Moodle V class platform users demonstrated high negative perception towards virtual learning technology. It is, therefore, clear from the above findings that further investments are required to develop a strong and resilient education system that support blended learning to enable the country deliver inclusive and equitable quality education for all and lifelong learning.

11. Recommendation

From the findings, the following recommendations have been made:

- i. The Ministry of Education through Ghana Education Service should periodically organize Teacher Professional Development Programmes to enforce instructors' and students' abilities on how to use online learning to deliver quality education and lifelong learning.
- ii. The Ministry of Education, Ghana Education Service and other stakeholders in education through Public Private Partnerships should provide all senior high schools with adequate quantity of computers, projectors, relevant digital content, dependable internet, smart boards, and other required digital infrastructure to enhance virtual learning.
- iii. Through Public Private Partnerships, computers and laptops should be highly subsidized and sold to senior high school teachers and students to support online learning.
- iv. The National Council for Curriculum and Assessment (NaCCA) should ensure that the current curriculum review create possibilities for integration of online learning into senior high school Social Studies programme.
- v. The Ghana Tertiary Education Commission (GTEC) in collaboration with the National Accreditation Board (NAB) must ensure that teacher training universities and Colleges of Education create opportunities for blended learning to adequately prepare the learners for the future.

Conflict of interest

The author declares no conflict of interest.

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