



## Research Article

# Evaluating the Impact of Instructional Materials on Social Studies Learning Outcomes in Senior High Schools of the Bono East Region of Ghana

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**Abstract:** This study investigates the impact of instructional materials on social studies education in Senior High Schools (SHS) in the Bono East Region of Ghana. It explores the types of instructional materials utilised, their effectiveness in enhancing student engagement, understanding, and academic performance, and their broader influence on learning outcomes such as cognitive skills and critical thinking. The research employed a descriptive cross sectional survey design, surveying 132 social studies teachers across 40 randomly selected schools. Findings indicate a predominant use of traditional instructional materials such as textbooks and blackboards, which are highly valued for their structured approach to curriculum delivery. Despite their widespread use, modern digital tools are significantly underutilised and perceived as less effective, attributed to infrastructural deficiencies and a lack of adequate teacher training. The study emphasises the importance of instructional materials in shaping educational outcomes and highlights the necessity for an educational reform that integrates both traditional and modern resources. Recommendations for policy makers, administrators, and teachers include enhancing infrastructural support, revising educational curricula to incorporate digital tools, and promoting professional development to optimise the use of diverse instructional materials.

**Keywords:** instructional materials, social studies education, senior high schools, student engagement, educational outcomes

## 1. Introduction

Social studies education is fundamental in preparing students to become active, informed, and responsible citizens (Russell & Waters, 2021; Hartshorne et al., 2019; Barton & Avery, 2016). This academic discipline integrates various aspects of history, geography, political science, and economics to provide a comprehensive understanding of society and its complex interactions (Banks, 2017; Ingeborgrud et al., 2020). According to the National Council for the Social Studies, social studies promotes civic competence and is central to informed decision-making, which is foundational to maintaining and enhancing the fabric of diverse democratic societies (NCSS, 2013). The effectiveness of social studies, however, significantly depends on the quality and appropriateness of the instructional materials used. Instructional materials are defined as the resources employed to support educational delivery. These include textbooks, digital resources, multimedia, and other educational tools that facilitate the learning process (Edelson et al., 2021; Snider, 2021; Gilbert & Kotelman, 2005). Well-designed instructional materials can enhance student engagement by providing relevant content and interactive learning experiences that cater to varied learning styles (Erbaggio et al., 2012; Gilboy

et al., 2015; Siraj & Maskari, 2019). Research indicates that the choice of instructional materials in social studies has a profound impact on students' ability to grasp historical concepts, appreciate diverse perspectives, and develop critical thinking skills (Olayinka, 2016; Afrina et al., 2021; Ilhan & Oruc, 2016). Effective materials not only convey content but also engage students in skills such as analysis, evaluation, and synthesis, which are vital in understanding complex social issues (Olayinka, 2016; Morrison et al., 2019; Onyia, 2013; Choppin et al., 2022). Moreover, integrating technology such as interactive maps and online archives, can further enrich students' learning experiences by providing more dynamic and accessible resources (Kristanto & Mariono, 2017; De Vera et al., 2021).

Instructional materials are instrumental in the delivery of social studies curriculum in Senior High Schools (SHS) in Ghana. These materials range from traditional blackboards, textbooks and printed handouts to more interactive resources like digital content, videos, and online learning platforms (Quaicoe & Pata, 2020). Blackboards and textbooks, however, remain the primary tools due to their structured approach to the curriculum and their role in standardising education across different settings (Cuban, 2013; Attakumah, 2020; Oppong Frimpong, 2021). Despite the rise of digital technologies, the accessibility and familiarity of textbooks make them indispensable in many schools, especially in regions with limited technological infrastructure (Opoku-Asare et al., 2015; Friesen, 2017).

The effectiveness of these materials is often hindered by several challenges, which impact the quality of social studies education. One major issue is the outdated content of many textbooks, which may not reflect current societal issues or the latest historical perspectives (Omenyo, 2016; Ato, 2009; Okae-Anti, 2020). This problem is compounded by the lack of resources for regularly updating these materials (Chanimbe & Dankwah, 2021; Asano et al., 2021; Opoku, 2021), leaving educators to supplement outdated textbooks with more current materials, often at their own expense (Attakumah, 2020; Amos et al., 2022; Dzikunu & Ansah, 2023). Additionally, the quality of materials can vary significantly, with rural schools frequently receiving fewer and lower-quality resources compared to their urban counterparts (Acheampong & Adom, 2014; Akaguri, 2011; Wood, 2023). Another significant challenge is the general lack of interactive and engaging materials in social studies classes (Mensah, 2020; Yaw, 2024). Many instructional resources are heavily text-based and do not incorporate visual aids or interactive elements that can enhance understanding and engagement (Agyeman, 2011). This traditional approach does not cater to the diverse learning styles of students, potentially leading to disengagement and lower academic achievement in social studies. Furthermore, teacher preparedness and training in using modern instructional materials are often inadequate, which can prevent effective implementation of innovative teaching strategies (Bariham, 2020; Nketsia et al., 2016). Teachers also face large class sizes and limited class time, which further restrict their ability to utilise instructional materials effectively to promote a deeper understanding of complex social studies concepts (Osai et al., 2021; Osei et al., 2018; Duah et al., 2023).

Moreover, despite the importance of instructional materials in the educational process, many Senior High Schools in Ghana face the challenges of non-availability and inadequacy, particularly in the teaching of social studies (Mensah & Osman, 2022). The existing literature frequently highlights the importance of modern, relevant, and engaging educational resources in enhancing learning outcomes (Kafyulilo, 2014; Carroll et al., 2021; Bains et al., 2022). However, in Ghana, there are persistent issues related to the adequacy, relevance, and utilisation of these materials in social studies education that the current study seeks to address (Agyen-Gyasi & Atta-Obeng, 2014; Acquah & IKwenin, 2021; Vanderpuye et al., 2020; Bariham et al., 2021; Anhwere, 2013). Furthermore, existing research predominantly focuses on the availability and general use of instructional materials (Quarcoo et al., 2022; Saayir et al., 2021; Aggrey et al., 2022) without adequately addressing their specific impact on key educational outcomes, such as critical thinking and cognitive skills development, within the context of social studies education. Therefore, it is against this backdrop that this study examined the impact of instructional materials on the teaching and learning of social studies in Senior High Schools in Ghana.

## **1.1 Research objectives**

To ascertain the various instructional materials employed by social studies teachers in senior high schools throughout the Bono East Region of Ghana.

To assess the effectiveness of these materials in terms of enhancing student understanding, engagement, and academic performance.

To evaluate the impact of these materials on broader learning outcomes, including cognitive skills, critical thinking, and student achievement.

## 2. Literature review

### 2.1 Theoretical frameworks

The use of instructional materials in education is grounded in several key theories and models that explain how these resources enhance learning. Two of the most influential frameworks in this regard are Multimedia Learning Theory and Constructivism. These theories provide a scientific basis for the design and utilisation of instructional materials, emphasising how they can optimise learning.

#### 2.1.1 Multimedia learning theory

Multimedia Learning Theory, pioneered by Richard E. Mayer and Roxana Moreno, is based on the premise that people learn better from words and pictures than from words alone (Mayer & Moreno, 1998; 1999; 2003). This theory has revolutionised educational strategies by emphasising the effective use of multimedia in enhancing learning. It integrates findings from several disciplines, including cognitive science, instructional technology, and educational psychology, to provide actionable guidelines for the design of educational multimedia. The primary proponent of Multimedia Learning Theory is Richard E. Mayer, a professor of psychology at the University of California, Santa Barbara. Since the 1990s, Mayer, along with researchers such as Roxana Moreno, has extensively published studies and books that delineate various aspects of how multimedia influences learning. Their work emphasises the cognitive processes involved when learners engage with multimedia instructional materials. The roots of Multimedia Learning Theory can be traced back to the dual coding theory proposed by Allan Paivio in the 1970s, which posited that visual and verbal information are processed in two distinct channels in the human mind (Paivio, 2013). Building on this foundational idea, Mayer introduced the Cognitive Theory of Multimedia Learning in the early 1990s. Over the years, he refined the theory through numerous empirical studies, which led to the formulation of several principles that guide the effective integration of multimedia in learning processes. The evolution of the theory also reflects changes in technology and how students interact with digital information. As digital tools and platforms became more accessible, Mayer and other researchers explored how different multimedia formats affect learning, including dynamic videos, interactive simulations, and e-learning environments.

##### 2.1.1.1 Key principles of the theory

Multimedia Learning Theory is grounded in several key principles designed to maximise learning efficiency by managing cognitive load and promoting active cognitive processing:

**Coherence Principle:** Suggests that learning is enhanced when extraneous material is excluded from multimedia instruction. This principle advocates for simplicity and focus in instructional design.

**Modality Principle:** States that people learn better from graphics and narrations than from animation and on-screen text. This principle is particularly effective when dealing with complex explanations or descriptions.

**Redundancy Principle:** Indicates that people learn better from graphics and narration than from graphics, narration, and on-screen text simultaneously. It warns against overloading the learner's cognitive system with redundant information.

**Spatial Contiguity Principle:** Learners perform better when corresponding words and pictures are presented close together rather than far apart. This principle emphasises the physical placement of information to reduce the cognitive effort of associating related elements.

**Temporal Contiguity Principle:** Learning is more effective when corresponding words and pictures are presented simultaneously rather than successively. This synchrony helps in the seamless integration of verbal and visual information.

**Segmenting Principle:** Learners benefit from a multimedia presentation when the content is presented in user-paced segments rather than as a continuous unit. This allows learners to manage their cognitive load according to their individual pace.

**Pre-training Principle:** Introducing key concepts before a multimedia presentation enhances understanding, particularly in scenarios involving complex materials. This prepares learners' mental models to integrate new information more effectively.

Multimedia Principle: People learn better from words and pictures than from words alone. This fundamental principle underpins the use of multimedia to support learning.

The relevance of Multimedia Learning Theory to the study of instructional materials in education, particularly in the context of social studies, is profound. In an educational setting, increasingly dominated by digital tools, understanding how multimedia elements can be optimally utilised is critical for instructional designers, educators, and educational technologists. The theory provides a well-researched framework that can be directly applied to the design of instructional materials for social studies. For instance, the integration of historical timelines, documentary clips, and interactive maps in digital textbooks could be aligned with the Coherence and Multimedia Principles to enhance students' engagement and comprehension.

Moreover, the principles of Temporal and Spatial Contiguity are particularly relevant when designing digital lessons that include animations or simulations of historical events. These principles ensure that students not only retain information better but also understand complex social dynamics more clearly. Furthermore, as social studies often involve complex narratives and diverse perspectives, applying the Modality and Redundancy Principles can help in presenting this information in a way that is both comprehensible and memorable. For example, when teaching about a historical event, narrated animations (Modality Principle) can be more effective than text-heavy explanations that could potentially overwhelm the learner.

### **2.1.2 Constructivism**

Constructivism is a learning theory positing that learners construct their own understanding and knowledge of the world, through experiences and reflecting on those experiences. It is a paradigm that suggests learners actively participate in the process of meaning and knowledge construction as opposed to passively receiving information. This theory is central to creating engaging and effective educational environments where learners are encouraged to think critically and analyse information deeply. The key proponents of Constructivism include Jean Piaget, who introduced the idea of developmental stages in learning; Lev Vygotsky, who emphasised the social context of learning; and John Dewey, who advocated for an educational structure that leads to practical and reflective thought (Dewey, 1986). Each of these theorists contributed to the development of Constructivism by providing unique insights into how individuals learn from a cognitive and social standpoint.

Constructivism has its roots in the cognitive revolution of the mid-20th century, which began as a response to the behaviorist theories prevalent at the time, which largely ignored the mental processes of understanding. Jean Piaget's studies of cognitive development in children were pivotal, as he demonstrated that children think differently than adults and construct their own knowledge through interactions with the world around them. Lev Vygotsky later expanded on these ideas by emphasising the importance of culture and social interaction in the process of learning, introducing the concept of the Zone of Proximal Development, which describes tasks that a child can perform with the guidance and encouragement of others. John Dewey, another influential figure, integrated Constructivist ideas into his educational philosophy, arguing that education should be grounded in real experiences and problem-solving to be truly effective (Dewey, 1986). Over the decades, these foundational ideas have evolved and have been adapted to various educational technologies and methodologies, influencing a wide range of approaches from problem-based learning to digital and collaborative learning environments.

#### **2.1.2.1 Key principles of the theory**

Constructivism is underpinned by several key principles that have significant implications for educational practice;

**Learning as an Active Process:** Learners actively construct their own understanding, meaning that knowledge acquisition occurs best through active engagement and participation.

**Knowledge Construction:** Learners build new knowledge on the foundation of their existing knowledge, emphasising the importance of prior knowledge and experiences in learning new concepts.

**Learning as a Social Activity:** Learning is inherently a social process as learners construct understanding through interactions with others in their community or learning environment.

**Problem-Based Learning:** True learning occurs when learners are engaged in solving real-world problems, thereby promoting critical thinking and the application of knowledge in practical settings.

Reflection on Experiences: Reflecting on experiences is crucial in shaping how learners understand concepts and ideas. This reflection helps in solidifying knowledge and adapting future actions based on past experiences.

The relevance of this theory to the study of instructional materials in education, particularly in the design and implementation of such materials, cannot be overstated. Constructivism suggests that these resources should not merely present information but should encourage exploration, interaction, and reflection. In social studies education, where understanding complex social systems and historical events is crucial, constructivist approaches can significantly enhance comprehension and engagement. Instructional materials designed according to constructivist principles might include interactive simulations that allow students to explore historical events, collaborative projects where learners debate and discuss these events, and problem-solving activities that connect past events with current social issues. These approaches ensure that students are not passive recipients of information but are active learners engaging with content in meaningful ways. For instance, using primary sources in a history class allows students to interpret and discuss the material themselves rather than receiving a pre-interpreted narrative from a textbook. This method encourages deeper engagement with the material and helps students develop critical thinking skills as they analyse and question the sources. Furthermore, the social aspect of constructivism is particularly relevant in today's diverse classrooms. Instructional materials that promote group work and discussion can help students learn from each other's perspectives, promote a richer understanding of the material and promoting a more inclusive learning environment.

## ***2.2 Empirical related studies***

In this section, I will review empirical studies that explore the impact of instructional materials on social studies education in Senior High Schools (SHS) in Ghana. These studies have examined various types of instructional materials, assessed their effectiveness in improving student understanding, engagement, and academic performance, and analysed their overall influence on learning outcomes.

### ***2.2.1 Types of instructional materials used***

A significant body of research has demonstrated the fundamental role of textbooks in enhancing student achievement. The study by Olayinka (2016) found that the integration of multimedia resources significantly enhanced students' academic achievement in social studies by catering to various learning styles and increasing material engagement. Similarly, Ilhan and Oruc (2016) showed that multimedia use in social studies classes improved students' performance, indicating a beneficial role of diverse instructional formats in educational settings. Further substantiating these findings, the work by Kristanto and Mariono (2017) examined the development of e-learning-based instructional materials, demonstrating that such resources, when blended effectively with traditional teaching methods, can provide dynamic and flexible learning environments that appeal to a broader spectrum of learning modalities. These studies underline the important role of multimedia and digital tools in modernising the educational approach and adapting to the diverse needs of learners. Furthermore, research by Cuban (2013) highlights that despite the rise of digital resources, textbooks remain central due to their structured and comprehensive nature, which is important for standardised education delivery. Textbooks provide a consistent and reliable framework within which students can explore complex topics in a systematic manner.

The effectiveness of real objects and hands-on materials in teaching social studies has also been observed. A study by Choppin et al. (2022) discusses how interactive materials that require active participation can help students develop higher-order thinking skills more effectively than traditional lecture-based methods. This approach not only facilitates a deeper understanding of the content but also enhances critical thinking and problem-solving skills. Moreover, the use of flashcards, charts, and other visual aids significantly contributes to the learning process by breaking down information into manageable, visually engaging pieces. These tools are particularly effective in memorisation and recall tasks, which are often essential components of social studies education (Morrison et al., 2019).

The role of online resources and interactive software, although less prevalent in some educational settings due to infrastructural challenges, is increasingly recognised for its potential to provide access to a vast array of information and interactive experiences. Studies by De Vera et al. (2021) emphasise the competencies required by educators to integrate these technologies effectively into their teaching methodologies, pointing to the need for continuous professional development in this area.

### *2.2.2 Effectiveness of instructional materials*

The effectiveness of instructional materials has been a focal point of research, particularly regarding student engagement and comprehension. Gilboy et al. (2015) explored the flipped classroom model and noted a marked improvement in student engagement and academic performance when instructional videos and other digital resources were utilised alongside traditional teaching methods. This is corroborated by Morrison et al. (2019), who argued that well-designed instructional materials that integrate various educational technologies could significantly enhance both teaching effectiveness and student learning outcomes.

Supporting this, the study by Afrina et al. (2021) emphasised how instructional materials tailored to incorporate national history and cultural values can increase student engagement and promote a deeper connection to the subject matter, thereby enhancing the educational impact. This approach aligns with the findings of Mayer (2001), who highlighted that materials which actively engage students through both visual and auditory channels can significantly boost comprehension and retention through the dual-channel processing of information.

Moreover, the practical application of these theories is evident in studies such as those by Erbaggio et al. (2012), who found that online authentic materials that provide real-life contexts for learning could greatly enhance student engagement and understanding. These materials enable students to see the relevance of their studies in real-world applications, making the learning experience more engaging and practical.

Additionally, the research by Siraj and Maskari (2019) on blended learning environments showed that when instructional materials are used to create a hybrid learning space, they not only cater to different learning styles but also promote a more inclusive and flexible learning environment. This adaptability is crucial in modern education, as it allows for the accommodation of diverse student needs and learning paces, which are often overlooked in traditional educational settings.

The role of textbooks, as studied by Cuban (2013), remains significant despite the rise of digital resources. Textbooks provide a structured approach to curriculum delivery and are often seen as foundational components that ensure the consistency and reliability of educational content across different learning environments. However, the integration of interactive elements within textbooks, such as QR codes linking to multimedia content, has begun to transform their traditional role, making them more engaging and interactive (Kristanto & Mariono, 2017).

### *2.2.3 Impact on learning outcomes*

Several studies have directly correlated the quality and type of instructional materials with learning outcomes. Heyneman and Loxley (1983) in their influential study across 39 countries, highlighted that the presence and quality of textbooks were strongly associated with student performance, underlining the fundamental role textbooks play in educational settings. More recent studies have expanded this to include digital resources, illustrating how the integration of technology can complement traditional learning methods. For instance, Glewwe et al. (2021) in Kenya found that while textbooks significantly improved the test scores of students with higher initial academic achievement, supplementary digital materials provided additional support to lower-achieving students, suggesting a need for a more inclusive educational resource strategy.

In the context of enhancing cognitive skills and promotes critical thinking, interactive and hands-on materials have proven particularly effective. Studies by Brush and Saye (2009) have shown that problem-based learning (PBL) approaches, which often utilise interactive simulations and real-world problem-solving scenarios, can significantly improve critical thinking skills. This method engages students in active learning processes that not only enhance their understanding of the content but also develop their ability to apply knowledge in practical contexts.

The impact of instructional materials on student achievement also extends to the incorporation of multimedia presentations and online resources, which have been found to enhance engagement and retention of information. Mayer's research (2005) on multimedia learning suggests that materials that effectively combine text, images, and audio cater to different learning styles and facilitate deeper cognitive processing, particularly in complex subjects like science and mathematics.

Furthermore, the inclusion of formative assessment tools within instructional materials allows for continuous evaluation of student understanding. Black and Wiliam (1998) have documented significant improvements in student performance when teachers use instructional materials that incorporate assessment opportunities, providing feedback

that guides future teaching strategies and learning activities. The disparity in access to quality instructional materials also affects learning outcomes, as shown by studies in various educational settings. Chudgar and Quin (2012) demonstrated that disparities in textbook availability contribute to educational inequality, particularly affecting students from disadvantaged backgrounds. This underlines the importance of ensuring equitable access to educational resources to promote a more inclusive and effective educational environment.

### 3. Methodology

The study employs a cross-sectional research design to assess the effectiveness of instructional materials on student learning and teacher performance in social studies. The research involved social studies teachers from Senior High Schools in Bono East Region of Ghana. A sample size of 132 is calculated using Krejcie and Morgan's formula [=  $\frac{X^2 Np(1-p)}{e^2(N-1) + X^2 p(1-p)}$ ]; where  $n$  = sample size needed,  $N$  = the total population size;  $e$  = the margin of error,  $X^2$  = Chi-square degree of freedom,  $p$  = percentage of the population] (Krejcie & Morgan, 1970). Cluster sampling was used to select 40 schools randomly. The data collection involved structured questionnaires, including multiple-choice questions and Likert scales from strongly agree (5) to strongly disagree (1), which were pilot tested to refine the questions and improve clarity (DeVellis, 2016). The reliability of the questionnaire was assessed using Cronbach's Alpha, resulting in an overall Cronbach's Alpha value of 0.87, indicating high internal consistency. The data collection procedures were systematic, starting from securing necessary approvals to administering questionnaires both electronically and on paper (Dillman et al., 2014). The collected data was analysed using SPSS software like SPSS version 27.0. The study adhered to ethical standards including obtaining informed consent, ensuring confidentiality, and minimising harm to participants.

### 4. Results and findings

This section presents the findings from the analysis of data collected from the social studies teachers. The results are organised to address each research question systematically, detailing the types of instructional materials used, their perceived effectiveness, and their influence on student engagement and learning outcomes. The analysis included descriptive statistics.

#### 4.1 Description of the sample

The participants for this study included social studies teachers from the selected Senior High Schools in the Bono East Region of Ghana. Below is a detailed description of the demographic and other relevant characteristics of the sample. The information is summarised in Table 1, which provides key statistics about the participants' age, gender, and teaching experience.

Table 1 presents the demographic breakdown of the sample used in the study on the impact of instructional materials on social studies education. The sample comprises 132 social studies teachers from the selected Senior High Schools in the Bono East Region of Ghana. Age distribution indicates a majority in the 31-40 years bracket (41.7%), reflecting a relatively young and middle-aged teaching workforce. The gender distribution showed male dominated, with a majority of participants (67.4%). In terms of educational attainment, most of the participants hold a Bachelor's Degree (68.9%), while a substantial minority possesses a Master's Degree (31.1%). This variation in educational background provides a rich basis for examining the influence of academic qualification on the utilisation and perceived effectiveness of instructional materials. The teaching experience among the participants varies, with the largest group having 5-10 years of experience (37.9%). This indicates a moderately experienced group, which is beneficial for the study. These teachers have spent enough time in the educational field to comprehensively observe and assess the impact of different instructional materials.

**Table 1.** Demographic characteristics of the sample

Variable	Description	Frequency	Percentage (%)
Age	20-30 years	40	30.3
	31-40 years	55	41.7
	41-50 years	25	18.9
	Over 50 years	12	9.1
Gender	Male	89	67.4
	Female	43	32.6
Highest education	Bachelor's degree	91	68.9
	Master's degree	41	31.1
Teaching experience	Less than 5 years	30	22.7
	5-10 years	50	37.9
	More than 10 years	52	39.4

## 4.2 Data analysis results

The analysis explored into the types of instructional materials used, their perceived effectiveness, and their influence on student engagement and academic performance.

## 4.3 The types of instructional materials used

The data presented in Table 2 categorised the types of Instructional Materials used by the social studies teachers.

**Table 2.** Types of instructional materials used

Type of material	Frequency	Percentage (%)
Textbooks	132	100.0
Blackboards	132	100.0
Flash cards	110	83.3
Real objects	50	37.9
Charts and rulers	105	79.5
Multimedia presentations	3	2.3
Online resources	10	7.6
Interactive software	0	0.0
Print media (newspapers, magazines)	5	3.8

Table 2 presents the various instructional materials utilised by the social studies teachers. Textbooks and blackboards were universally used (100%), emphasising their foundational role in instructional strategies. These tools



were likely favoured for their accessibility and ease of use, facilitating structured, curriculum-based learning. Flash cards and charts and rulers were also prominently used, by 83.3% and 79.5% of teachers, respectively. Conversely, the adoption of digital and interactive resources was significantly low. Multimedia presentations were utilised by only 2.3% of the teachers, and online resources by 7.6%. The negligible use of interactive software (0%) and minimal use of print media (3.8%) suggest a significant gap in integrating modern educational technologies and varied content formats into the teaching process. Moreover, the use of real objects by 37.9% of teachers indicated an engagement with hands-on learning methods, although this was less common compared to other traditional methods. Real objects offered a tangible connection to the material being taught, enhancing student understanding and engagement by bringing abstract social studies concepts to life.

#### 4.4 Perceived effectiveness of instructional materials

Furthermore, the data Table 3 below highlights the perceived effectiveness of various instructional materials in terms of enhancing understanding, engagement, and academic performance among social studies teachers in the Bono East Region of Ghana..

**Table 3.** Perceived effectiveness of instructional materials

Type of material	Perceived increase in understanding Mean (SD)	Perceived increase in engagement Mean (SD)	Improvement in academic performance Mean (SD)
Textbooks	4.54 (0.707)	4.03 (0.816)	4.16 (0.755)
Blackboards	5.00 (0.000)	5.00 (0.000)	5.00 (0.000)
Flash cards	4.07 (0.851)	4.15 (0.753)	4.03 (0.826)
Real objects	2.70 (0.899)	2.60 (0.857)	2.47 (0.799)
Charts and rulers	3.76 (0.800)	3.79 (0.755)	3.41 (0.709)
Multimedia presentations	1.22 (0.318)	1.21 (0.319)	1.10 (0.223)
Online resources	1.31 (0.354)	1.30 (0.300)	1.26 (0.301)
Interactive software	0.00 (0.000)	0.00 (0.000)	0.00 (0.000)
Print media	1.28 (0.316)	1.24 (0.309)	1.21 (0.224)

From Table 3 above, Blackboards emerged as the most effective tool, showing a perfect score of 5.00 (SD = 0.000) across all measures, indicating their universal acceptance and effectiveness in improving understanding, engagement, and academic performance. Textbooks followed closely as the second most effective tool across all three categories, with mean scores of 4.54 (SD = 0.707) for understanding, 4.03 (SD = 0.816) for engagement, and 4.16 (SD = 0.755) for academic performance. This emphasises the importance of structured and comprehensive content in supporting learning objectives effectively. Flash Cards also demonstrated significant effectiveness, particularly in boosting engagement (mean = 4.15, SD = 0.753) and understanding (mean = 4.075, SD = 0.851). Their tactile nature and ease of use likely contribute to these high ratings, making them a popular choice for reinforcing key concepts and enhancing student interaction during lessons. Conversely, modern digital tools such as Multimedia Presentations and Online Resources showed very low effectiveness. Both tools scored poorly across all effectiveness measures, with mean scores close to or below 1.30, indicating minimal impact on student understanding, engagement, and academic performance. This suggests a significant gap between the use of these technologies and their educational outcomes in this context, potentially due to inadequate integration into the curriculum, insufficient teacher training on effective utilization, or limitations in technological infrastructure within schools.

#### 4.5 Perceived impact of instructional materials on learning outcomes

Additionally, the data in Table 4 below presents the impacts of different instructional materials on learning outcomes, focusing on cognitive skills enhancement, critical thinking development, and overall student achievement in Senior High Schools of the Bono East Region of Ghana

**Table 4.** Perceived impact of instructional materials on learning outcomes

Type of material	Enhancement of cognitive skills Mean (SD)	Improvement in critical thinking Mean (SD)	Boost in student achievement Mean (SD)
Textbooks	4.74 (0.536)	4.614 (0.495)	4.697 (0.466)
Blackboards	5.00 (0.000)	4.92 (0.098)	4.92 (0.075)
Flash cards	4.03 (0.816)	3.84 (0.831)	3.87 (0.817)
Real objects	2.18 (0.881)	2.06 (0.808)	2.15 (0.791)
Charts and rulers	3.69 (0.754)	3.47 (0.727)	3.48 (0.705)
Multimedia presentations	1.08 (0.302)	1.15 (0.335)	1.01 (0.249)
Online resources	1.10 (0.363)	1.073 (0.316)	1.073 (0.335)
Interactive software	0.00 (0.000)	0.000 (0.000)	0.00 (0.000)
Print media	1.106 (0.363)	0.939 (0.332)	0.879 (0.335)

The data in Table 4 showed a strong reliance on traditional instructional materials, with blackboards emerging as the most effective across all metrics (cognitive skills mean = 5.000, SD = 0.0000; critical thinking mean = 4.923, SD = 0.0987; student achievement mean = 4.924, SD = 0.0756). This suggests that blackboards are not only ubiquitous but are perceived as highly effective in promoting an environment conducive to learning. Textbooks also score highly in all categories, indicating their essential role in structured learning and providing a comprehensive knowledge base. Their contribution to enhancing cognitive skills (mean = 4.74, SD = 0.536), critical thinking (mean = 4.61, SD = 0.495), and student achievement (mean = 4.69, SD = 0.466) points to their indispensability in the educational toolkit. Flash cards and charts and rulers also show positive impacts but to a lesser extent compared to textbooks and blackboards. Flash cards facilitate engagement and understanding (mean = 4.03, SD = 0.816), while charts and rulers support visual learning and academic performance (mean = 3.69, SD = 0.754). These materials are particularly beneficial for interactive learning sessions, aiding in the visualisation of complex concepts and supporting iterative learning processes. Conversely, modern digital tools such as multimedia presentations, online resources, and interactive software demonstrate markedly lower impacts on learning outcomes. Multimedia presentations and online resources, in particular, show minimal effectiveness across cognitive skills, critical thinking, and achievement (means ranging from 1.015 to 1.152, SDs ranging from 0.249 to 0.335), suggesting a disconnect in their integration and utility within classroom settings. Their underwhelming performance could be attributed to several factors, including inadequate integration into daily teaching practices, lack of proper training for teachers, and insufficient technological infrastructure. Similarly, the low effectiveness scores for multimedia presentations and online resources raise concerns about their alignment with the curriculum and their actual utility in classrooms. Overall, while traditional instructional materials continue to dominate in terms of effectiveness, there is a clear and urgent need to enhance the adoption and effectiveness of digital tools to create a more dynamic and interactive learning environment. Addressing the challenges of integrating digital tools through better training for teachers and improving technological infrastructure will be crucial in achieving this goal.

## 5. Discussion

The findings from this study align closely with established theories and existing research, particularly the principles of Multimedia Learning Theory and Constructivism. The findings reveal significant insights into the types of instructional materials used, their perceived effectiveness, and their influence on student engagement and learning outcomes, providing a comprehensive overview of current practices and their implications for educational strategies.

The findings emphasise the predominant use of traditional materials such as textbooks and blackboards, which are reported to be highly effective in enhancing understanding, engagement, and academic performance. These results echo the principles of Multimedia Learning Theory as outlined by Mayer (2002), particularly the multimedia principle that suggests people learn better from words and pictures combined than from words alone (Mayer, 2002). However, the limited use and effectiveness of multimedia presentations and online resources as noted in the findings indicate a gap in the optimal application of this theory in the educational settings studied. Previous research by Mayer and Moreno (2003) highlights the potential of well-designed multimedia instructional materials to significantly enhance learning by reducing cognitive load and integrating dual channels for information processing. The underutilisation of such resources in the Bono East Region suggests a missed opportunity to leverage these principles effectively.

The findings also align with the Constructivist theory, which emphasises learning as an active, contextualised process of constructing knowledge rather than passively receiving it (Vygotsky, 1978). The effectiveness of real objects and flash cards supports this view, as these materials facilitate hands-on learning and active participation, which are core to Constructivist approaches. Piaget (1950) and Vygotsky (1978) have both argued for the importance of interactive and experiential learning tools that allow students to apply and reflect on their knowledge actively. Despite this, the low usage of interactive software and other digital tools that facilitate such interactive learning points to a disconnection between educational practices in the region and the ideals of Constructivism, which advocates for a more engaged and learner-centered approach.

Moreover, the heavy reliance on traditional instructional materials such as textbooks and blackboards, as noted in the study, is consistent with previous findings across various educational contexts. For instance, the study by Cuban (2013) and Tondeur et al. (2017) indicates that despite the proliferation of digital resources, traditional materials remain central in classroom practices globally. These materials are often preferred for their accessibility, ease of use, and alignment with standardised curricula, providing a structured and controlled environment that facilitates learning.

Also, the effectiveness of textbooks and blackboards observed in this study concurs with findings by Heyneman and Loxley (1983), who noted that the presence and quality of textbooks are strongly correlated with student performance. Blackboards have been universally recognised for their role in enhancing understanding and engagement, corroborated by studies such as that by Gilboy et al. (2015), which emphasise the importance of these tools in traditional teaching settings for promoting clear and direct instruction.

However, the minimal use and perceived low effectiveness of digital tools such as multimedia presentations and online resources in this study echo the challenges noted in other regions, as discussed by Cuban (2013) and Morrison et al. (2019). These studies highlight infrastructural and training barriers that limit the effective integration of technology in education. Furthermore, the findings by Mayer (2005) on the multimedia principle suggest that without proper design and implementation, the potential benefits of multimedia learning might not be fully realised, which seems to be the case in the Bono East Region of Ghana. However, the divergence becomes apparent in the integration and effectiveness of digital tools. While global trends indicate a growing incorporation of technology in education, as seen in studies by Tondeur et al. (2017), the low adoption in the Bono East Region points to regional discrepancies possibly due to infrastructural and professional development gaps. This underutilisation contrasts with the broader educational narrative that increasingly emphasises digital literacy and technology integration as crucial for modern education.

The findings suggest several implications for future educational practices in the Bono East Region of Ghana. The teachers' perceptions of traditional learning materials (TLMS) like textbooks and blackboards as highly effective stem from their familiarity, accessibility, and proven alignment with the curriculum. These materials facilitate structured, clear instruction, enhancing cognitive skills, critical thinking, and student achievement. Conversely, the limited use and perceived ineffectiveness of digital tools are attributed to insufficient training and inadequate technological infrastructure, which hinder their optimal integration into teaching practices. Addressing these challenges by improving teacher training and infrastructure is essential for leveraging the full potential of digital tools and creating a more dynamic and interactive learning environment.

## 6. Conclusion

The findings from this study suggest that traditional instructional materials, particularly textbooks and blackboards, continue to be instrumental in the social studies classroom. These tools are highly valued for their effectiveness in enhancing student understanding, engagement, and academic performance. The findings indicate that these traditional materials are reliable and form the backbone of instructional strategies due to their structured and comprehensive nature, which aligns well with the educational curriculum and teaching practices. However, the study also highlights a significant underutilisation and limited effectiveness of digital and multimedia resources. This gap suggests a pressing need for infrastructural improvements and teacher training in digital tools to enhance the educational systems. The minimal use of interactive software and other digital tools points towards a potential area for development, aiming to incorporate more dynamic and interactive learning environments that can cater to diverse learning styles and prepare students for a technologically advanced society. In conclusion, the findings advocate for a balanced integration of both traditional and modern instructional materials in Ghanaian classrooms. This approach can provide a more holistic and effective educational experience, ensuring students in Ghana are well-versed in their historical and social knowledge while also being equipped with the skills required in the 21st century.

## 7. Recommendations

Based on the findings from this study, these recommendations are made to teachers, policymakers, and school administrators to enhance the effectiveness of instructional materials in social studies education within Senior High Schools in the Bono East Region of Ghana;

### 7.1 Recommendations to social studies teachers

Teachers should consider integrating a wider variety of instructional materials, including digital and multimedia resources, alongside traditional tools like textbooks and blackboards. This approach can cater to different learning styles and potentially increase student engagement and comprehension.

Teachers should engage in continuous professional development focused on the effective use of technology in the classroom. This training should cover not only technical skills but also pedagogical strategies for integrating digital tools effectively into teaching practices.

### 7.2 Recommendations to policymakers

Policymakers should prioritise investments in technological infrastructure within schools to ensure that digital tools are accessible and functional. This includes reliable internet access, adequate digital devices, and maintenance support.

They should work towards updating the educational curriculum to include the use of digital and multimedia instructional materials. This should also involve aligning assessment methods to accommodate and reflect the integration of these modern teaching tools.

### 7.3 Recommendations to school administrators

Administrators should provide the necessary support for the adoption of digital tools, which includes budget allocations for purchasing modern educational technologies and training teachers on their use.

Administrators should ensure a balanced allocation of resources that supports both the maintenance and enhancement of traditional teaching tools and the introduction of innovative digital resources.

They should promote an environment that encourages teachers to share insights and strategies for effectively using various instructional materials. This could involve regular workshops and meetings where teachers can collaborate and learn from each other.

## Conflict of interest

The authors declare there is no conflict of interest at any point with reference to research findings.

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## Appendix

### Questionnaire

Hello Sir/Madam

Thank you for participating in this important study aimed at assessing the impact of instructional materials on social studies education in Senior High Schools across the Bono East Region of Ghana. Your input is important as it will help us understand the current usage of various instructional materials, evaluate their effectiveness, and determine their influence on student engagement and learning outcomes.

This questionnaire consists of several sections that will ask you about your background, the types of instructional materials you use, your perceptions of their effectiveness, and their impact on student learning outcomes. The information you provide will be invaluable in shaping future educational policies and practices, ensuring that they are aligned with the needs and realities of teachers and students alike.

Your responses will be kept confidential and will only be used for the purposes of this study. Completing the questionnaire should take approximately 15-20 minutes. We greatly appreciate your time and insights, as they are vital to the success of this research.

#### *Part 1: Demographic information*

1. Age:

- a. 20-30 years
- b. 31-40 years
- c. 41-50 years
- d. Over 50 years

2. Gender:

- a. Male
- b. Female

3. Highest Level of Education:

- a. Bachelor's Degree
- b. Master's Degree
- c. Other (Please specify) \_\_\_\_\_

4. Years of Teaching Experience:

- a. Less than 5 years
- b. 5-10 years
- c. More than 10 years

#### *Part 2: Types of instructional materials used*

5. Please indicate the types of instructional materials you use regularly. (Check all that apply)

- a. Textbooks
- b. Blackboards
- c. Flash Cards
- d. Real Objects
- e. Charts and Rulers
- f. Multimedia Presentations
- g. Online Resources
- h. Interactive Software
- i. Print Media (Newspapers, Magazines)

### *Part 3: Perceived effectiveness of instructional materials*

6. For each of the materials you use, rate their effectiveness in increasing student understanding, engagement, and academic performance. (Rate 1-5, where 1 is Not Effective and 5 is Very Effective)

Material	Understanding	Engagement	Performance
Textbooks	[1-5] ____	[1-5] ____	[1-5] ____
Blackboards	[1-5] ____	[1-5] ____	[1-5] ____
Flash cards	[1-5] ____	[1-5] ____	[1-5] ____
Real objects	[1-5] ____	[1-5] ____	[1-5] ____
Charts and rulers	[1-5] ____	[1-5] ____	[1-5] ____
Multimedia presentations	[1-5] ____	[1-5] ____	[1-5] ____
Online resources	[1-5] ____	[1-5] ____	[1-5] ____
Interactive software	[1-5] ____	[1-5] ____	[1-5] ____
Print media (newspapers, magazines)	[1-5] ____	[1-5] ____	[1-5] ____

### *Part 4: Impact of instructional materials on learning outcomes*

7. Assess the impact of the following instructional materials on the enhancement of cognitive skills, development of critical thinking, and improvement in student achievement. (Rate 1-5, where 1 is No Impact and 5 is High Impact)

Material	Cognitive skills	Critical thinking	Achievement
Textbooks	[1-5] ____	[1-5] ____	[1-5] ____
Blackboards	[1-5] ____	[1-5] ____	[1-5] ____
Flash cards	[1-5] ____	[1-5] ____	[1-5] ____
Real objects	[1-5] ____	[1-5] ____	[1-5] ____
Charts and rulers	[1-5] ____	[1-5] ____	[1-5] ____
Multimedia presentations	[1-5] ____	[1-5] ____	[1-5] ____
Online resources	[1-5] ____	[1-5] ____	[1-5] ____
Interactive software	[1-5] ____	[1-5] ____	[1-5] ____
Print media (newspapers, magazines)	[1-5] ____	[1-5] ____	[1-5] ____