

# Original Research Article

## Acquisition and application of 21st century skills among pre-service social studies teachers in Ghana

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### ABSTRACT

It is widely acknowledged that Social Studies can aid students in acquiring essential 21st-century skills. Nonetheless, research on the real-world application of these skills is limited. While some studies have looked at integrating these skills into the Social Studies curriculum and teaching approaches, they have not investigated their use in practical situations. This study aimed to examine how pre-service Social Studies students at the University of Education, Winneba, in Ghana acquire and apply 21st-century skills. A quantitative approach was used with a descriptive survey design. The study included a population of 333 pre-service Social Studies teachers from the Department of Social Studies Education. The respondents were selected through proportionate stratified sampling, and data was gathered using a structured questionnaire. Descriptive statistics and a one-sample t-test were used to analyze the data. The results showed a low level of 21st-century skills acquisition among the respondents, with a mean of mean score of 1.9 (SD = 0.9). The one-sample t-test revealed significant findings across all assessed 21st-century skills, with mean scores consistently below the benchmark of 3.0 ( $p$ -value = .00). **Although the development of 21st-century skills was limited, the participants applied several of these skills in managing the socio-economic aspects of their lives.**

*Keywords: 21<sup>st</sup> century skills; social studies; core competences; pre-service; socio-economic.*

### 1. INTRODUCTION

In recent times, the youth face numerous socio-economic challenges, with poverty standing as a particularly significant issue. Bokombe (2020) highlights that poverty remains a major global concern, impacting millions of young people across developed and developing nations. Poverty transcends mere financial insufficiency, depriving individuals of the resources necessary for full societal participation. Townsend (2020) asserts that poverty deprives people of resources essential for maintaining society's standard of living. Townsend's perspective underscores the severe consequences of poverty, as it restricts access to basic needs and leaves individuals struggling to fulfill even their most fundamental requirements. According to the 2023 Global Multidimensional Poverty Index, 1.1 billion people worldwide still endure multidimensional

poverty, with Sub-Saharan Africa being the hardest-hit region (Oxford Poverty and Human Development Initiative & United Nations Development Programme, 2023).

In Ghana, poverty is particularly alarming, with 45.6% of the population experiencing multidimensional poverty and 23.4% facing monetary poverty (GSS, 2020). Studies in Ghana link poverty to various social problems, such as heightened risk factors for criminal behavior, human rights abuse, decline in social and human dignity, and weakened family structures (Asuamah-Yeboah & James Nyarkoh, 2023; Mood & Jonsson, 2016; Wrigley-Asante et al., 2016; Oduro & Amoah, 2022; Taahiru-Swallah, 2021; Dako-Gyeke et al., 2022). Given these socio-economic problems, 21st-century education is a potentially transformative tool for equipping Ghanaian youth with essential knowledge, skills, and attitudes to survive. Literature identifies these competencies as 21st-century skills, vital for navigating contemporary socio-economic challenges. Historical evidence shows that the global shift from an agrarian to an industrial economy marked a pivotal transition from manual labor and resource-based industries to sectors driven by technology, information, and innovation. As societies have continued to evolve from industrial economies to service- and information-based economies, the emphasis has increasingly shifted toward intellectual capabilities and digital skills (Unger, 2022; Wei et al., 2022). According to Garritzmann et al. (2022), the transition toward knowledge economies represents a fundamental economic and social condition shaping the 21st century. In response, contemporary education systems now prioritize essential 21st-century skills like critical thinking, creativity, digital literacy, communication, and collaboration, recognizing them as fundamental for success in the modern world.

With a rapidly evolving global society, individuals are increasingly required to master these diverse skill sets to thrive (Zhou, 2023). Developing 21st-century skills is now recognized as essential for both personal and professional success, forming a foundation for overcoming the demands of modern life (Muldagaliyeva et al., 2023). Key domains of these skills, including critical thinking, communication, collaboration, and adaptability, have been extensively highlighted by organizations such as the Partnership for 21st Century Skills and the U.S. National Research Council (Muldagaliyeva et al., 2023; Oluwagbohunmi & Alonge, 2023; National Research Council, 2012). By embedding these competencies into educational systems, schools are increasingly positioned to empower individuals for personal and professional achievements, ultimately fostering socio-economic advancement (Oluwagbohunmi & Alonge, 2023).

The demand for individuals adept at addressing 21st-century challenges has spurred widespread educational reforms globally (Akinwande, 2021; Joynes et al., 2019). Numerous countries, including Ghana, have reformed their education systems to develop learners' 21st-century skills (Aboagye & Yawson, 2020; Ntumi et al., 2023; Yeboah-Hammond et al., 2023). These reforms promote the integration of competencies such as critical thinking, problem-solving, communication, collaboration, leadership, adaptability, and ethical orientation into school curricula (Belyaeva et al., 2022; Akinwande,

2021). In Ghana, the Ministry of Education, in partnership with the National Council for Curriculum and Assessment (NaCCA), has incorporated 21st-century skills into the pre-tertiary curriculum, including Social Studies (National Council for Curriculum and Assessment, 2020; Erol, 2021). This shift has directly influenced teacher education programs, underscoring the alignment of teacher preparation with current educational demands (Amponsah et al., 2023; Coffie, 2019). The initiative seeks to develop innovative graduates, and problem-solvers, who possess critical thinking abilities, and demonstrate both confidence and competence in contributing to Ghanaian society as responsible local and global citizens (National Council for Curriculum and Assessment, 2018). In Ghana, Social Studies as a discipline aims to cultivate learners' curiosity, critical thinking, and problem-solving skills while developing competencies vital for personal growth and leadership (National Council for Curriculum and Assessment, 2020; Appiah & Owusu, 2023). The pre-tertiary standard-based Social Studies curriculum outlines 21st-century skills as core competencies capturing domains like creativity, digital literacy, critical thinking, problem-solving, cultural awareness, global citizenship, communication, and collaboration (National Council for Curriculum and Assessment, 2020). It is expected that future Social Studies teachers will first acquire and understand these competencies to effectively impart them to their students. These competencies are also envisioned to transcend classroom learning, becoming integral to pre-service teachers' daily lives (Oluwagbohunmi & Alonge, 2023). As Adam (2020) asserts, embedding these core competencies within Social Studies instruction can equip individuals with essential survival skills for today's complex world.

While it is widely acknowledged that Social Studies can impart invaluable 21st-century skills, their practical application in real-life contexts remains underexplored. Previous studies by Oluwagbohunmi and Alonge (2023), Hati (2021), and Erol (2021) have primarily focused on the integration of 21st-century skills into the Social Studies curriculum and instructions. However, these studies do not address whether pre-service Social Studies teachers have acquired these skills to a satisfactory level and how they employ them in their daily activities. This study addresses this critical gap by evaluating the extent to which pre-service Social Studies at the University of Education, Winneba have acquired 21st-century skills and how they apply these skills in the socio-economic context. The study was guided by these study questions 1. To what extent have pre-service Social Studies teachers acquired 21st-century skills fostered through Social Studies? 2. In what ways do Pre-service Social Studies teachers employ 21st-century skills in their daily living?

## **2. THEORETICAL FRAMEWORK: SEN'S CAPABILITY THEORY**

This research is guided by Amartya Sen's Capability Theory, which provides a multidimensional framework for assessing well-being by evaluating individuals' 'capabilities' and 'functionings' (Rauhut & Hatti, 2021). Within this framework, capabilities represent the significant freedoms or abilities individuals possess, enabling them to live in a manner that aligns with their subjective perception of a dignified life (Garces, 2022). Robeyns (2021) suggests that functionings refer to

what a person can achieve or become, relying on their capabilities and influenced by the outcomes they find valuable or worthwhile. Alkire (2003) presents a more simplified notion of functionings, describing it as an umbrella term for the things people recognize to be important and may value doing or being.

The conception of capabilities and functionings by Robeyns (2021) and Alkire (2003) suggests that while capabilities refer to the opportunity set or abilities, functionings pertain to achievements. Furthermore, it appears that an individual's actions and states of being are not independent of their ability to achieve or become what they consider worthy for life or survival, although the reverse may not necessarily hold. This may partly elucidate why Amartya Sen prioritizes the assessment of well-being within the domain of capabilities rather than functionings. Sen (1992) posits that socioeconomic well-being stems from a lack of capabilities, and thus, mitigating socio-economic deficiency necessitates augmenting individuals' abilities to engage in activities that enhance their socio-economic well-being.

Frediani (2010) offers a novel interpretation of Sen's Capability theory, emphasizing the active conversion of resources (tangible and intangible) into actual functionings within an individual's capability space. This space encompasses choices, abilities, and opportunities, where resources are transformed into achieved functionings. This study expands on this perspective by highlighting the importance of not only possessing 21st-century skills but also effectively applying and transforming them into tangible outcomes that contribute to improving well-being. These skills empower individuals to leverage their capabilities effectively within their capability spaces (Belyaeva et al., 2022; Akinwande, 2021). By refining these competencies, individuals can translate their capabilities into concrete achievements that enhance their socio-economic well-being. Therefore, this research, through the lens of Sen's capability theory, examined how acquiring and utilizing 21st-century skills enable individuals to improve their overall well-being in the dynamic socio-economic landscape of the 21st century.

## **2.1 21ST CENTURY SKILL ACQUISITION AMONG STUDENTS**

The integration of 21st-century skills in education has garnered a significant body of research. While some studies have assessed the effectiveness of curricula in fostering these essential competencies among students others have focused on the acquisition of these skills by students who are engaging with 21st century curricula. Taş and Minaz (2022) conducted a study focused on the primary education 4th-grade Social Studies curriculum, gathering insights from 86 classroom teachers through an explanatory mixed-methods model. The study revealed that the curriculum falls short in providing students with a comprehensive range of 21st-century skills. While it performed relatively better in promoting collaboration, using technology for learning, and communication, significant gaps were identified in developing self-management/self-regulation skills and making connections at both global and local levels. Similarly, Bozkurt (2020) evaluated the current undergraduate social studies teaching program in Turkey, utilizing an explanatory mixed-methods approach with a sample

of 335 teacher candidates. The study revealed that while the program effectively fosters collaboration and communication skills, it struggles to adequately develop competencies related to global awareness and digital literacy. Furthermore, despite the inclusion of 21st-century skills as intended learning outcomes, these competencies were not effectively integrated into the learning processes.

The studies by Taş and Minaz (2022) and Bozkurt (2020) collectively highlight significant concerns regarding the integration of 21st-century competencies into Social Studies education at both pre-tertiary and tertiary levels. These studies reveal persistent gaps in developing students' digital skills, global citizenship, and social networking abilities. Implicit in their findings is a critique of the pedagogical approaches currently employed in Social Studies curricula. Specifically, the limited success in nurturing critical self-regulation skills at the primary level and fostering digital and global awareness at the undergraduate level suggests that traditional teaching methods may dominate and fall short in cultivating these competencies. Taş and Minaz (2022) point out that without practical, real-world applications, skills like self-regulation are underdeveloped in younger students, potentially due to an insufficient emphasis on self-directed learning within the curriculum. Similarly, Bozkurt (2020) identifies a troubling disconnect between intended learning outcomes and actual learning processes in higher education, suggesting that outdated teaching practices may pose systemic barriers. This discrepancy between curricular objectives and instructional practices suggests that while 21st-century skills are recognized as essential, adequate mechanisms are needed to translate these objectives into meaningful classroom experiences.

The exploration of 21st-century skills extends beyond Social Studies, as demonstrated by Barası and Erdamar (2021), who investigated language teachers' perceptions of a middle school language curriculum. Employing a descriptive survey involving 273 language teachers, the findings revealed that communication, collaboration, and social interaction skills were the most frequently achieved among students. Conversely, skills such as creativity, accountability, and self-direction were found to be less developed. Teachers cited several challenges in implementing facilitating skills, including outdated learning outcomes, insufficient engaging texts, and a lack of critical thinking abilities among students. These barriers highlight the need for curricula to not only incorporate 21st-century skills but also to provide the necessary resources and strategies for their effective teaching and assessment. This study implies that while engaging students in instruction designed to develop 21st-century skills is essential, it is accompanied by significant challenges. Barası and Erdamar (2021) highlight several potential barriers that could impede the holistic acquisition of these skills, suggesting that without addressing these obstacles, curricula may fall short of effectively instilling the desired 21st-century competencies in students.

In addition, Anter and Bulonos (2022) assessed the acquisition of 21st-century skills among pre-service teachers at the University of Mindanao. Involving 133 respondents across seven programs in the Department of Teacher Education, the study revealed a very high level of acquisition in digital literacy, collaboration, social skills, and creativity among pre-service teachers. However, communication, critical thinking, and leadership skills were acquired at a comparatively lower level. A study by Hamzeh et al. (2022) focused on mathematics teachers, assessing their acquisition of 21st-century skills through a survey of 75 school principals. The results indicated that while personal and communication skills among mathematics teachers were rated as intermediate, their technical and teaching skills were deemed high. Finally, Hero (2022) evaluated the acquisition of 21st-century skills among students enrolled in the Alternative Learning System Senior High School (ALS SHS) in Bulacan. Utilizing a quantitative descriptive survey design, the findings indicated a moderate level of acquisition of these skills among ALS SHS learners. The findings from these studies (Anter & Bulonos, 2022; Hamzeh et al., 2022; Hero, 2022) reveal inconsistencies in students' acquisition of 21st-century skills; some skills are well-developed, while others are only moderately or poorly attained. Although these studies provide valuable insights, they lack an exploration of key competencies like cultural identity, lifelong learning and personal development, global citizenship, and compassion. Thus, addressing these overlooked areas in this current research provides a more comprehensive perspective on 21st-century skill acquisition and its broader implications.

## **2.2 STUDENTS' PRACTICE OF 21ST CENTURY SKILLS**

In recent times, researchers have studied various aspects of 21st-century skill application among students across different educational contexts. Hadiyanto (2019) conducted a study aimed at assessing students' perceptions of their 21st-century skill practices during e-learning activities, focusing on both soft skills and hard skills. Utilizing a self-assessment questionnaire administered to 33 students, the study found that students exhibited a high level of competence in practicing these skills. Notably, soft skills such as communication, information technology (IT), numeracy, problem-solving, and teamwork were rated highly, with IT skills emerging as the most frequently practiced in e-learning environments. This suggests that students are not only engaging with technology but are also developing essential competencies that are critical in the modern workforce. Similarly, Alowayyid (2023) explored the application of 21st-century skills among middle school students in the Kingdom of Saudi Arabia. By employing a descriptive survey approach and administering questionnaires to a random sample of female middle school teachers in the Al-Qassim region, the study revealed that while students' use of technology was highly rated, their proficiency in information and media literacy, technology culture, health and safety, and self-leadership received moderate evaluations. Although this research provides valuable insights, it is limited by its exclusive focus on teachers' perceptions, omitting students' self-assessments. Incorporating the perspectives of students could yield a more holistic understanding of skill application and may also

enhance the reliability of the findings. Furthermore, the gender-specific focus raises questions about the generalizability of the results, as the exclusion of male teachers may overlook significant insights relevant to the exploration.

Moreover, some studies have concentrated on individual 21st-century skills, distinguishing themselves from the research conducted by Hadiyanto (2019) and Alowayyid (2023) which assessed multiple skills simultaneously. In contrast to the broader assessments of 21st-century skills conducted by Hadiyanto (2019) and Alowayyid (2023), these studies provide a more targeted focus on the application of specific skills, such as critical thinking, problem-solving, and digital literacy, among the student population. For instance, Lu and Nguyen (2022) investigated teachers' perceptions and practices regarding the integration of critical thinking skills in argumentative essay writing. The researchers utilized a mixed-methods approach, combining questionnaires and semi-structured interviews, with 85 teachers from a university in the Mekong Delta participating in the survey. The findings indicated that teachers believed critical thinking skills such as interpreting, analyzing, inferring, evaluating, and self-regulating were evident in their students' writing. These findings indicate the vital role that teachers play in fostering critical thinking skills through their pedagogical and assessment methods. Specifically, when teachers purposefully design and implement learner-centered instructional techniques and authentic assessment methods, they effectively engage students in the application and enhancement of their critical thinking skills.

Hidaayatullaah et al. (2020) further contribute to this discourse by examining the effects of problem-based learning (PBL) on students' problem-solving abilities in physics topics like momentum and impulse. Through a pre-experimental design that included one experimental group and two replication groups, the study found that PBL positively influenced students' problem-solving skills. This suggests that active engagement in problem-solving contexts enhances students' abilities to apply theoretical knowledge to practical situations, thereby reinforcing the importance of innovative teaching methodologies. Again, Boie et al. (2024) investigated the concept of "digital instinct," a term coined by students to describe their reliance on digital technology for problem-solving and completing assignments. By analyzing 100 descriptions of lived experiences and conducting interviews with 37 Danish upper secondary students, the researchers found that students effectively used digital technologies as cognitive partners. This active engagement with digital tools illustrates the practical application of digital literacy and its integration into students' learning processes, reinforcing the notion that technological proficiency is essential for navigating contemporary educational challenges.

The ongoing discourse indicates that a substantial number of academic research concerning students' practice of 21st-century skills is largely restricted to academic contexts. The studies reviewed support this assertion, as they predominantly focus on how students employ 21st-century skills within educational settings and do not adequately examine their application in addressing challenges outside the classroom or in non-academic environments. Given that

students are expected to apply knowledge and skills beyond the confines of the classroom, this narrow focus presents a limited perspective on how they address real-life problems using 21st-century skills. In this regard, this study addressed this significant gap by shifting the discourse towards an exploration of how students in the context of 21st-century higher education employ these skills in socio-economic situations.

### 3. MATERIAL AND METHODS

#### 3.1 Research Design

This study employed a descriptive survey design. The design was employed to examine the 21st-century skills in social studies in relation to their contribution to improving the socio-economic well-being of students.

#### 3.2 Population of the Study

The study focused on pre-service social studies teachers at the University Of Education, Winneba (UEW), specifically those in their second, third, and final year. The accessible population for this study comprised second, third, and final year social studies students who were present during various lecture periods throughout the data collection phase.

#### 3.3 Sampling Methods

The enrollment data from the department of social studies education at the University Of Education, Winneba (UEW) for the 2023/2024 academic year served as a sampling frame, encompassing a total of 1,987 students across the selected academic levels. The study employed proportionate stratified sampling to ensure a representative sample of the respondents. This approach was chosen to ensure that an unbiased and accurate sample was obtained, ultimately contributing to the reliability and validity of the research findings (Bhardwaj, 2019). Subsequently, the sample size of 333 was determined using the Yamane (1967) formula with a 5% margin of error. The researcher then categorized the students into their respective year levels (strata). The number of respondents needed from each year level to maintain the correct proportions was estimated. Finally, a random number generator was used to select a total of 333 respondents. Table 1 below shows the breakdown of the sample across the different year levels.

*Table 1: Proportional Allocation of the Sample*

Year/Level	Number of Students	Sample
Second	635	106
Third	520	87
Final	832	140
Total	1987	333

source: enrollment data from the department social studies education (2023/2024)

### 3.4 Data Collection Method

To collect data for the study, the researcher developed a questionnaire and administered it directly to ensure that all respondents completed it on the same day, achieving a 100% response rate. The questionnaire was divided into three sections. The first section gathered demographic information, focusing on respondents' gender and academic level. The second section consisted of eleven items assessing respondents' acquisition of 21st-century skills, using a scale from Very High (VH), High (H), Moderate (MD), Very Low (VL), to Slow (S). The final section, which included ten items, examined how pre-service Social Studies students applied 21st-century skills to support their socio-economic well-being, using a Likert scale to measure responses.

### 3.5 Validity and Reliability

To establish the validity of the data collection instrument, an expert review was conducted, supported by the theory of content validity as outlined by Lawshe (1975) as cited by Madadzadeh and Bahariniya (2023). Lawshe emphasizes that expert assessments are essential for ensuring that the instrument accurately reflects the construct it intends to measure. Following the expert review, the questionnaire was pre-tested with 50 students from the Department of Basic Education at the University of Education, Winneba, who are specializing in Social Studies. This pre-test sample was selected because these students were training as pre-service Social Studies teachers, sharing relevant disciplinary characteristics with the study's target respondents. Table 2 presents the reliability evaluation of the instrument using Cronbach's alpha, which yielded a coefficient of .80. According to Bonett and Wright (2015), Cronbach's alpha is a reliable measure of the internal consistency of a set of items assessing a single construct. A Cronbach's alpha value of .70 or higher is generally accepted as indicative of good reliability, confirming that the instrument consistently measures the intended construct (Izah et al., 2023).

*Table 2: Internal Reliability Statistics*

Cronbach's Alpha	N of Items
.8	22

source: field survey (2024)

### 3.6 Data Analysis

The data was analyzed using both descriptive and inferential statistics. For research question one, the analysis included frequencies, percentages, mean, and standard deviation, along with one-sample t-tests to provide a comprehensive examination of the data. For research question two, frequencies and percentages were used to effectively summarize and interpret the data.

## 4. RESULTS AND DISCUSSION

### 4.1 Level of 21<sup>st</sup>-century Skill Acquisition

To address the first research question, this study assessed the extent to which pre-service Social Studies teachers have developed 21st-century skills integrated into their education. Table 3 presents the descriptive statistics of their skill acquisition levels, applying a decision rule for interpretation: a mean score of 4.1 to 5.0 indicates "Very High," 3.1 to 4.0 signifies "High," 2.1 to 3.0 reflects "Moderate," 1.1 to 2.0 denotes "Low," and a score of 0.1 to 1.0 represents "Very Low." As seen in Table 3, critical thinking, with a mean score of 1.8 (SD = 0.8), is not sufficiently developed among the pre-service Social Studies teachers in this study. Although the standard deviation suggests some consistency in responses, the low mean indicates a general lack of confidence in critical thinking abilities. Similarly, problem-solving skills show a mean of 1.7 (SD = 0.8), emphasizing a further gap in essential competencies. Despite 46.5% and 37% of respondents rating this skill as high and very high, respectively, the low average score implies an overall deficiency. Creativity and innovation, with a mean of 2.0, sit just at the threshold of the "Low" category. However, a standard deviation of 1.0 reflects more variability in responses, possibly indicating differing understandings or applications of creativity among respondents. Communication and collaboration also have low mean scores of 1.9 (SD = 0.9), signaling limited acquisition. Although over 76% of respondents rated these competencies as high, the mean scores show that overall confidence in these areas remains insufficient, suggesting a gap between individual high ratings and general skill levels. Digital literacy, essential for surviving in 21st-century society, shows a mean score of 2.0 (SD = 0.9), revealing a significant gap in digital readiness critical in today's technology-driven society. While some respondents rated themselves highly, the low mean suggests a general deficiency that could impact their ability to integrate digital tools into teaching and socio-economic activities. The competencies of cultural identity and global citizenship are similarly underdeveloped, with mean scores of 1.8 (SD = 0.7) and 1.9 (SD = 0.9), respectively. The lower standard deviation for cultural identity implies a more consistent recognition of limited competence, whereas global citizenship shows greater variability. Both low means reveal missed opportunities for fostering a globally aware and culturally responsive social environment. Lastly, leadership, personal development, and compassion each obtained mean scores of 1.8, emphasizing low acquisition levels. An overall mean score of 1.9 across all competencies, combined with a relatively consistent standard deviation of 0.9, suggests a persistent pattern of low skill acquisition.

Table 3. Descriptive Statistics of 21st Century Skill Acquisition

21 <sup>st</sup>	Century	H	VH	MD	L	VL	Mean	SD	Remark
Skills/Core									
Competencies									

Critical thinking	139(41.7)	140( 42)	51(15.3)	1(0.3)	2 (0.6)	1.8	0.8	Low
Problem solving	155(46.5)	122 (37)	53(15.9)	1(0.3)	2 (0.6)	1.7	0.8	Low
Creativity and Innovation	137 (41.1)	90 (27)	88(26.4)	8 (2.4)	10(3)	2.0	1.0	Low
Communication	118(35.4)	136(41)	72(21.6)	-	7(2.1)	1.9	0.9	Low
Collaboration	124(37.2)	144(43)	50(15)	7(2.1)	8 (2.4)	1.9	0.9	Low
Digital Literacy	123 (36.9)	113(34)	85(25.5)	8(2.4)	4 (1.2)	2.0	0.9	Low
Cultural Identity	131(39.3)	147(44)	53(15.9)	1(0.3)	1(0.3)	1.8	0.7	Low
Global Citizenship	146(43.8)	87(26.1)	91(27.3)	4(1.2)	5(1.5)	1.9	0.9	Low
Leadership	138(41.4)	128(38)	57(17.1)	3(0.9)	7(2.1)	1.8	0.9	Low
Personal Development	129(38.7)	150(45)	51(15.3)	-	3(0.9)	1.8	0.8	Low
Compassion	136(40.8)	147(44)	41(12.3)	1(0.3)	8(2.4)	1.8	0.8	Low
Mean of mean/Mean of SD						1.9	0.9	Low

source: field survey (2024)

To validate the findings and inferences drawn from the descriptive statistics in Table 3, one-sample t-tests were conducted. The criterion value of 3.0 was set as the minimally acceptable level for comparison. In addressing the issue of multiple comparisons, the Bonferroni correction was applied, resulting in an adjusted significance level of 0.01 (0.05/11). This adjustment was necessary to minimize type I errors, since multiple tests were conducted without pre-specified hypotheses (Armstrong, 2014; Lee & Lee, 2018). The one-sample t-test results in Table 4 indicate significant findings across all evaluated 21st-century skills, with mean scores notably below the benchmark of 3.0. Specifically, critical

thinking shows a mean score of 1.8 (SD = 0.8) and a t-value of -29.333, indicating a highly significant difference with a p-value=.00. Similarly, problem-solving achieved a mean of 1.7 (SD = 0.8) with a t-value of -29.890, also p-value=.00. The pattern continued across other competencies, including creativity and innovation (mean = 2.0, SD = 1.0, t = -17.139), communication (mean = 1.9, SD = 0.9, t = -26.444), and collaboration (mean = 1.9, SD = 0.9, t = -29.632). The consistently negative t-values, combined with highly significant p-values (p=0.01), strongly corroborate the conclusion that pre-service teachers' acquisition of 21st-century skills is significantly low. These findings support the descriptive statistics, highlighting a pervasive inadequacy in 21st-century skill acquisition.

Table 4. One-Sample Test Results for Various 21<sup>st</sup>-century Skill Acquisition Level

Test Value = 3.0						
	Mean	SD	t	df	Sig. (2-tailed)	Mean Difference
Critical thinking	1.8	0.8	-29.333	332	.000	-1.2342
Problem solving	1.7	0.8	-29.890	332	.000	-1.2823
Creativity and innovation	2.0	1.0	-17.139	332	.000	-.8709
Communication	1.9	0.9	-26.444	332	.000	-1.1862
Collaboration	1.9	0.9	-29.632	332	.000	-1.2733
Digital literacy	2.0	0.9	-18.949	332	.000	-1.0270
Cultural identity	1.8	0.7	-24.520	332	.000	-1.0961
Global citizenship	1.9	0.9	-21.925	332	.000	-1.0901
Leadership	1.8	0.9	-21.139	332	.000	-1.0360
Personal development	1.8	0.8	-29.404	332	.000	-1.2102
Compassion	1.8	0.8	-22.174	332	.000	-1.1321

source: field survey (2024)

significant at  $p = .01$  (2-tailed)

#### 4.2 Pre-service Social Studies Teachers' Application of 21st-century Skills in their Daily Living

The results in Table 5 show that pre-service Social Studies teachers actively incorporate 21st-century skills in managing socio-economic aspects of their lives, reflecting strong engagement with critical thinking, digital literacy, creativity, collaboration, and empathy. These competencies, which include problem-solving, resource management, and interpersonal relationship-building, are crucial in navigating daily challenges and promoting economic resilience. A majority of pre-service teachers utilize critical thinking and problem-solving skills to make well-informed decisions in financial management. Specifically, 58.3% agreed and 40.8% strongly agreed that they leverage these skills to plan and manage resources effectively. In line with this, 57.4% agreed, and 39% strongly agreed that they apply these skills to develop coping mechanisms to alleviate economic hardships. This emphasis on critical thinking and problem-solving demonstrates their proactive approach to overcoming financial constraints.

Digital literacy also plays a prominent role in the lives of these pre-service teachers. Over half (56.5%) report using digital platforms for income-generating activities such as online businesses and sports betting, while 60.1% consistently purchase essential items online. This trend highlights how digital tools are seamlessly integrated into their financial and personal activities, signifying their adaptability to modern technology for economic sustainability. Entrepreneurial skills, as seen in creative and innovative endeavors, are also prevalent among these teachers, with 55.9% agreeing and 28.5% strongly agreeing that they often employ creativity in entrepreneurial pursuits. Additionally, the majority of these pre-service teachers recognize the importance of building networks and social support systems. Nearly half (48%) agree and 42.9% strongly agree that they establish supportive relationships with friends, neighbors, and vendors for financial and material assistance when needed. This networking approach provides a safety net, demonstrating how interpersonal connections are vital for socio-economic well-being.

Collaborative efforts extend beyond personal support networks to more formal initiatives, with 47.1% of respondents agreeing and 29.4% strongly agreeing that they collaborate with others to establish initiatives aimed at socio-economic improvement. This inclination toward community-oriented projects highlights the importance placed on teamwork and collective efforts to foster socio-economic growth. Similarly, in their daily interactions, these pre-service teachers often exhibit empathy by providing essentials like food and clothing to those in need, with a combined 96.4% agreeing or strongly agreeing on showing empathy through material support. Finally, resource-sharing among peers is another notable aspect of these teachers' economic coping strategies, as evidenced by 52.9% who strongly agree and 36.9% who agree that they pool resources to meet basic needs. This pooling strategy underscores their reliance on collective problem-solving to maintain a balanced socio-economic status.

Table 5: Frequency of 21st-Century Skill Application in Socio-Economic Activities

Statement	Agree	Strongly Agree	Disagree	Strongly Disagree
I often leverage on my critical thinking and problem-solving skills plan and make appropriate decisions on spending and managing resources.	194(58.3)	136(40.8)	-	3(0.9)
I employ critical thinking and problem solving skills to develop effective coping strategies to overcome/reduce economic hardship	191(57.4)	130(39)	8(2.4)	4(1.2)
I use digital tools/platforms for income generating activities (online business or job, sports betting and others)	188(56.5)	89(26.7)	41(12.3)	15(4.5)
I consistently access and purchase essentials from digital platforms (eg. food, cloths, health services etc.)	200(60.1)	75(22.5)	47(14.1)	11(3.3)
I often utilize my creative and innovative abilities for entrepreneurship.	186(55.9)	95(28.5)	41(12.3)	11(3.3)
I have developed personal network/relationship with people (friends, neighbors, vendors, roommate etc) whom I often seek support (financial, material, or social) when necessary.	160(48)	143(42.9)	20(6.0)	10(3.0)
I work with an organization that prioritizes improving the socio-economic wellbeing of people (paid, voluntary, or collaborative)	154(46.2)	91(27.3)	72(21.6)	16(4.8)
I have collaborated with other people/agencies to establish an organization or initiatives that prioritize improving the socio-economic wellbeing of people (the focus could be skills and entrepreneurship training, economic empowerment, education empowerment, relief initiatives etc.).	157(47.1)	98(29.4)	63(18.9)	15(4.5)
I often show empathy to individuals who lack some essentials (food, clothing, water, accommodation etc.)	143(42.9)	178(53.5)	6(1.8)	6(1.8)

by giving gifts (monetary, or material).

My friends and I combine resources (food or money) to 123(36.9) 176(52.9) 20(6) 14(4.2)

ensure that we survive on campus or at home.

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source: field survey (2024)

### 4.3 Discussion

The results reveal a significant gap in the preparedness of pre-service Social Studies teachers to effectively address complex socioeconomic issues. Specifically, the study uncovered a marked deficiency in their acquisition of 21st-century skills, which are essential to the Social Studies discipline. These findings diverge from those of Anter and Bulonos (2022), Hamzeh et al. (2022), and Hero (2022), who observed variability in students' proficiency, with certain skills being well-developed while others were only moderately or poorly attained. In contrast, this study found that all assessed 21st-century skills among respondents were uniformly low. The underdeveloped foundational skills, such as critical thinking, problem-solving, and digital literacy, suggest a limited capacity for these individuals to adapt to and navigate the complex challenges of contemporary economies and societies. As noted by Mustafazada (2024), these core competencies are crucial for analyzing multifaceted issues, making informed decisions, and leveraging digital skills that are increasingly vital for personal and professional success in a competitive, innovation-driven global economy.

Furthermore, the limited development of communication and collaboration skills among pre-service Social Studies teachers raises serious concerns about their capacity to participate meaningfully in professional networks, drive community initiatives, and engage effectively with stakeholders on societal issues. These 21st-century skills are essential not only for addressing local and global socioeconomic challenges but also for fostering values such as tolerance, cooperation, and social cohesion, all of which are foundational to economic and social stability (Joynes et al., 2019). The general deficiency across these competencies suggests that current training programs may not sufficiently prepare pre-service Social Studies teachers for roles that extend beyond traditional teaching. Bozkurt (2020), in evaluating an undergraduate Social Studies teaching program in Turkey, found that while 21st-century skills were listed as intended learning outcomes, they were not effectively integrated into actual learning processes. This points to a broader issue in higher education, where there is often a disconnection between curriculum objectives and real learning experiences. This misalignment suggests that outdated teaching practices may create systemic barriers to the development of 21st-century skills.

Although the study revealed that 21st-century skills are inefficient among pre-service Social Studies teachers, the study found that they integrate various 21st-century skills in managing the socio-economic aspects of their lives, particularly in

critical thinking, digital literacy, creativity, collaboration, and empathy. The engagement of these pre-service teachers with critical thinking and problem-solving skills is evident in their approach to financial decision-making. A substantial proportion actively employs these skills to plan and manage resources, which indicates a proactive strategy for addressing economic hardships. This focus on thoughtful resource management underscores their resilience in the face of financial constraints. Again, digital literacy plays a pivotal role in their socio-economic adaptability. The study revealed that many pre-service teachers utilize digital platforms for income-generating activities, including online businesses and other e-commerce. This reflects their ability to leverage modern technology for economic sustainability. Additionally, a notable percentage expresses that they apply creativity in entrepreneurial ventures, highlighting the critical importance of innovation in identifying and seizing economic opportunities.

The establishment of social networks and supportive relationships is also vital in the socio-economic strategies among the respondents. Many pre-service teachers recognize the necessity of building connections with peers, neighbors, and vendors to secure financial and material assistance. This networking approach serves as a crucial safety net, illustrating the role of interpersonal relationships in enhancing socio-economic well-being. Furthermore, these pre-service teachers engage in collaborative efforts that extend to community-oriented initiatives aimed at socio-economic improvement. Many reported their commitment to teamwork and collective action in fostering community growth. Their empathetic behaviors, such as providing food and clothing to those in need, reinforce their dedication to social support, with nearly all respondents indicating a willingness to assist others materially. The resource-sharing practices among peers further illustrate their economic coping strategies, revealing a reliance on collective problem-solving to maintain a balanced socio-economic status. By pooling resources, they exemplify the significance of collaboration in addressing shared challenges and emphasize the interconnectedness of their socio-economic experiences. These findings, within the lens of Amartya Sen's Capability theory, underscore the significance of the influence of 21st-century skills in empowering individuals to leverage their capabilities effectively within their capability spaces (Belyaeva et al., 2022; Akinwande, 2021). The study has shown that individuals who possess 21st-century skills to some extent can translate these capabilities into concrete achievements that can enhance their socio-economic well-being.

## **5. CONCLUSION AND RECOMMENDATIONS**

Despite the relatively low levels of skill acquisition, the findings suggest a latent potential among students to further develop these competencies. This indicates that, with appropriate interventions, substantial improvements can be made in their ability to address contemporary challenges. While the study highlights the underdeveloped nature of these skills, it also reveals that participants are utilizing some of these competencies in managing their socio-economic realities. This suggests that even limited exposure to 21st-century skills can yield practical applications, though they remain insufficiently

cultivated. Furthermore, the study establishes an important baseline for future research on lecturers' approaches to fostering 21st-century skills within Social Studies education. The findings pave the way for further exploration of the long-term impacts of pedagogical innovations on student outcomes. It is recommended that lecturers in the Department of Social Studies assess their teaching approaches and overall strategies for fostering the development of 21st-century skills in pre-service teachers within the discipline. Additionally, the Quality Assurance Unit at the University of Education, Winneba should focus on monitoring and supporting the acquisition of 21st-century skills among students, particularly those in the Department of Social Studies Education.

#### Disclaimer (Artificial intelligence)

The author hereby declares that generative AI technologies such as Large Language Models and grammar-checking tools have been used during the writing and editing of this manuscript. The following details outline the usage of generative AI in this research:

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❖ Summarize the abstract.

❖ Enhance the clarity of these statements.

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