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BAHIR DAR UNIVERSITY

COLLEGE OF EDUCATION

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DEPARTMENT OF SOCIAL SCIENCE EDUCATION

A Dissertation

on

Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks and Classroom Practices and its Effect on Students' Perceived Literacy of Contemporary Geographic Issues: East Gojjam and Awi Zone in Focus

By

Worknesh Engidayehu

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Bahir Dar University

January, 2026

BAHIR DAR UNIVERSITY

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Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks and Classroom Practices and Its Effect on Students' Perceived Literacy of Contemporary Geographic Issues: East Gojjam and Awi Zones in Focus

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Education in Geography and Environmental Studies

Supervisor: Arega Bazezew(Professor)

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Bahir Dar, Ethiopia

January, 2026

BAHIR DAR UNIVERSITY

COLLEGE OF EDUCATION

SCHOOL OF TEACHER EDUCATION

DEPARTMENT OF SOCIAL SCIENCE EDUCATION

DECLARATION

I, the undersigned, declare that this dissertation entitled Integration of Contemporary Geographic Issues in Secondary School Textbooks and Classroom Practices: East Gojjam and Awi Zone in Focus" is my original work and that all sources of materials cited in the work have been duly acknowledged. This dissertation is not presented for any degree at any other university so far.

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APPROVAL OF DISSERTATION FOR DEFENSE

We hereby certify that we have supervised, read, and evaluated this dissertation titled **“** Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks and Classroom Practices: East Gojjam and Awi Zone in Focus,” prepared under our guidance. We recommend that the dissertation can be submitted for oral defence.

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APPROVAL OF DISSERTATION FOR DEFENCE

This is to certify that the dissertation prepared by Worknesh Engidayehu titled “Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks and Classroom Practices: East Gojjam and Awi Zones in Focus” and submitted in fulfillment of the requirements for the Degree of Doctor of Education in Geography and Environmental Studies complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the Examining Committee:

Examiner 1 ……Signature…… Date…….

Examiner 2 …… Signature ……..Date ……..

Supervisor …… …Signature ……Date ……

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ABSTRACT

This study aimed to investigate the integration of contemporary geographic issues in Grade 9 and 10 Geography textbooks and classroom Practices. A mixed research approach with a concurrent embedded research design was employed. Thus, secondary school Geography textbooks, Grade 9 and 10 Geography teachers, and students found in East Gojjam and Awi Administrative Zones were used as samples of the study. While the purposive sampling technique was used to select Grade 9 and 10 Geography textbooks, the multistage sampling technique was used to select teachers and students as samples of the study. Therefore, Grade 9 and 10 Geography textbooks, 72 teachers, and 348 students were used as samples of the study. To collect data from these samples, document analysis, survey questionnaire, in-depth interview, and classroom observation were used. Both quantitative and qualitative data analysis techniques were used to analyze the data collected through these instruments. While the quantitative data were analyzed through frequency, mean, percentage, rank mean, one-sample t-test, Friedman Rank Order Test, repeated measures of ANOVA, and multiple regression, the qualitative data were analyzed through thematic analysis. The findings reveal that although the textbooks integrate contemporary geographic issues that are prevalent at the local and global levels, these issues were not integrated in ways to enhance students' knowledge, attitudes, skills, and participation in the issues in a balanced way. The findings also reveal that contemporary geographic issues in the classrooms were integrated at the lower level, and the effect of integrating these issues in enhancing students' literacy of contemporary geographic issues in the classrooms was not significantly sustained. Finally, it was found that while teachers' years of teaching experience, training programs, and material quality were significant predictors for the integration of contemporary geographic issues, teachers' literacy of these issues and their qualifications were not significant predictors of integrating these issues in Geography lessons. The data obtained from in-depth interviews also reveal that a shortage of time, lack of digital literacy, limited administrative support, and insufficient opportunities for professional development affect teachers' levels of integration. These findings imply that effective integration of CGIs in geography education relies more on the presence of material quality, continuous professional development, and practical training programs. Thus, these findings pedagogically imply that educational systems must involve in investing well-qualified resources and design hands-on professional development programs.

Keywords: Contemporary Geographic Issues, Integration, Geography Textbooks, Literacy of Contemporary Geographic Issues

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LIST OF ACRONYMS AND ABBREVIATIONS

ACCCMP	African Community Climate Change Master Plan
AGTA	Australia Geography Teacher Association
ANOVA	Analysis of Variance
APCC	Action Plan on Climate Change
CGIs	Contemporary Geographic Issues
CRED	Centre for Research on the Epidemiology of Disasters
DDCC	The Dhaka Declaration on Climate Change
EA	Environmental Authority
ACCCMP	African Community Climate Change Master Plan
EAPR	East Asia and the Pacific Region
EE	Environmental education
EEDR	Ethiopian Education Development Roadmap Program
EFCCC	Ethiopian Environment, Forest, and Climate Change Commission

ESD	Education for Sustainable Development
ESDP	Education Sector Development Program
ESA	Education Service of Australia
ETP	Education and Training Policy
EUDE	European Union Delegation to Ethiopia
FDRE	Federal Democratic Republic of Ethiopia
GCC	Global Climate Change
GIS	Geographic Information System
HRD	Humanitarian Requirements Document
IGU	International Geographic Union
IPCC	Intergovernmental Panel on Climate Change
IUCNN	International Union for the Conservation of Nature and Natural Resources
MD	Mean Difference
MoE	Ministry of Education
MOTORIC	Motivation, Observation, Thinking, Orientation, Repetition, Imitation and Creativity

NAEE	National Assessment of Environmental Education
NCES	National Center for Educational Statistics
NGOs	Non-Governmental Organizations
NIED	National Institute for Educational Development
OCHA	Office for the Coordination of Humanitarian Affairs
PCK	Pedagogical content knowledge
RM	Rank Mean
RNGSS	The Recent Next Generation Science Standards
RSA	Republic of South Africa
SAARC	South Asian Association for Regional Cooperation
SDG	Sustainable Development Goal
SE	Standard Error
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNCC	United Nations Climate Change

UNCCD	United Nations Convention to Combat Desertification
UNDESD	United Nations Decade of Education for Sustainable Development
UNDRR	United Nations Office for Disaster Risk Reduction
UNEP	United Nations Environment Programme
UNICEF	United Nations International Children's Emergency Fund
US	United States
WHO	World Health Organization
WCF	Wildlife Conservation Fund

CHAPTER ONE: INTRODUCTION

Introduction

This study attempted to look into the integration of contemporary geographic issues(hereafter CGIs) in secondary school geography textbooks and classroom practices, and its effect on students' perceived literacy of contemporary geographic issues. Thus, this chapter introduces the study by presenting the background of the study and the statement of the problem. It also outlines the research objectives and questions designed to investigate the extent of integration of CGIs in Grade 9 and 10 Geography textbooks and classroom practices, its effect on students' perceived literacy of contemporary geographic issues, and the predictive factors that affect teachers' integration of CGIs into classroom practices. The chapter also specifies the delimitation of the study, highlights its significance for geography teachers, curriculum developers, textbook writers, and students. Finally, it acknowledges potential limitations and provides operational definitions of key terms to ensure clarity and consistency throughout the study.

1.1 Background of the Study

In human history, there has been a continuous interaction and relationship between the people and the environment in which they live. This, in turn, enables the people to become very familiar with the environment, interpret the events that occur in it, and live in harmony and peacefully with the surroundings for a long period of time (Değirmenci & Ilter, 2017).

Nowadays, however, population growth and high interaction of people with the environment highly affect the environment and cause many current environmental problems. These current environmental problems and related disasters are called contemporary geographic issues (Australia Geography Teacher Association, 2013; CGE, 1992). These contemporary geographic issues (CGIs) include global climate change, environmental pollution, soil and coastal erosion, drought, loss of biodiversity/deforestation, disasters, waste disposal, famine and food insecurity, natural hazards and disasters, flooding, urban developments, population growth, population movements, and poverty. Currently, these CGIs negatively affect the environment, human life, and sustainable development at the global and local levels. Considering these problems, scien-

tists claimed that the world will pay considerable costs tomorrow if the problems continue in this way. Thus, these issues have become the common global agenda (Liew *et al*, 2020; IPCC, 2018; Spinoni et al., 2015; Wang et al., 2017).

To control and/or minimize these problems, different stakeholders have made different efforts at the global and local levels. They have budgeted a lot of money to minimize climate change (Hess, 2021), rehabilitate the degraded land (Adessi, 2021; UNCCD, 2019), restore a holistic program for reservoir watershed (Megersa & Abdulahi, 2015; Naumann et al., 2021), and rehabilitate desertification and drought (UNDRR, 2021).

However, it is argued that using merely those strategies is not effective and sustainable. Parallel with these strategies, the international community has made significant efforts to promote people's awareness and protection of environmental issues. To reinforce this effort, numerous international conferences have been convened at various times and locations. Among the most prominent are the conferences held in Stockholm (1972 and 2022), Belgrade (Yugoslavia, 1975), Tbilisi (Georgia, 1977), Rio de Janeiro (Brazil, 1992 and 2012), Thessaloniki (Greece, 1997), Johannesburg (South Africa, 2002), and Montreal (Canada, 2022**)**. In addition**,** multiple sessions of the United Nations' Climate Change Conferences have been held in various countries at different times. In those conferences, different proclamations, principles, guidelines, and frameworks have been developed to raise awareness for stakeholders and protect the current environmental problems.

These conferences underscored that it is necessary to educate the younger generation about CGIs related to our environment by incorporating them into the educational curriculum. It was pointed out that by including students in the education process, the younger generation can increase their literacy of CGIs, such as awareness, knowledge, attitude, problem-solving ability, and involvement in addressing the environment (Palmer, 1998; UNESCO, 1977). Consequently, it was argued that if students become literate in CGIs, they tend to participate in environmentally protective acts, thus resulting in a sustainable environment.

To make the integration of CGIs effective and enhance the younger generation's literacy of CGIs, the conferences established key principles and guidelines for embedding environmental topics into school curricula and classroom practices. This indicates that curriculum materials and classroom practices play a great role in integrating CGIs and enhancing the younger genera-

tion's knowledge, skills, attitudes, and participation in CGIs. Therefore, when CGIs are integrated into the school curricula, attention should be given not only to which CGIs are incorporated in the school curricula but also to how they are integrated into the school curricula. For instance, following the Stockholm (1972) and Belgrade (1975) conferences, the UNESCO (1973) and UNESCO-UNEP (1975), respectively, recommended that when curriculum materials integrate CGIs, they should prioritize environmental issues that are prevalent at both the local and the global levels.

It has also been recommended that appropriate content items, learning objectives, and instructional activities for each CGI should deliberately be integrated into school curricula. When the content items, learning objectives, and instructional activities are incorporated in the school curricula, they should be structured in a way that develops students' knowledge, attitudes, problem-solving skills, and active engagement on CGIs in a coherent and balanced manner (Palmer, 1998; UNESCO, 1973; UNESCO-UNEP, 1975). Content items of CGIs in the school curricula should be evidence-based and illustrated with locally relevant examples, allowing students to connect geographic knowledge with real-world environmental challenges. Learning objectives must also provide clear instructional guidance, emphasizing what students need to know, feel, and be able to do, and participate in environmental problems. Moreover, instructional activities should foster students' knowledge, attitudes, skills, and active participation in environmental problems. That is, they enable them to investigate and analyze environmental issues, evaluate diverse perspectives, propose solutions, and cultivate active citizenship.

The integration of CGIs in the schools' curricula can also be effective when these issues are integrated in the classroom effectively, as classrooms are essential to transform the education of CGIs into a tool for awareness, critical inquiry, and responsible citizenship for protecting the environment**.** Integration of CGIs in the classroom, on the other hand, is affected by several teacher-related factors, as teachers are the primary agents and responsible bodies for incorporating CGIs in classroom instruction(Palmer, 1998). These teacher factors include teacher literacy of CGIs, their use of relevant teaching methods and sources of information, qualification, professional training and teaching experiences. In light of teachers' literacy of CGIs, Cheng and So (2015) emphasized that teachers' understanding of current environmental problems is crucial for educating students to become well-informed, aware, and responsible for the environment. Similarly, Ferreira and Bopape (2009) noted that teachers' literacy of CGIs plays a key role in

achieving the goals of environmental education in classrooms. Conversely, insufficient literacy hinders teachers' ability to integrate CGIs effectively. For instance, Gardner (2009) linked low levels of teacher literacy on CGIs to the ineffective integration of environmental issues in classroom instruction.

In addition, teachers' use of effective teaching methods is important to enhance students' literacy of CGIs. In cases where teachers apply appropriate teaching methods, there is a significant enhancement of students' knowledge, attitude, problem-solving skills, and active participation in the environment (Aubrey & Osvaldo, 2013; Chang, 2015; Koc, 2018). Gök and Boncukçu (2023) also found that in the classrooms where problem-based instruction is carried out effectively, students' environmental attitudes and problem-solving skills are enhanced. Similarly, Lee and Kriewaldt (2025) noted that experiential learning significantly enhances the capacity of students to solve environmental problems.

Furthermore, it is argued that Geography teachers should have access to use current, diverse, and appropriate sources of information(for example, news, recently published articles, maps, videos, and digital sources) when they integrate CGIs into lessons. Use of these sources of information enhances teachers' integration of CGIs, deepens students' understanding, promotes students' sensitivity and problem-solving skills, and fosters active engagement with real-world issues (Engelen & Budke, 2023; Değirmenci & Ilter, 2017). Bondarenko (2025), in a review of 267 studies, found that teaching geographic topics with multiple information sources supports students' knowledge, spatial thinking, inquiry skills, and problem-solving abilities. Conversely, limited access to or use of information sources impedes the translation of curricula into classroom practice and real-life application (Koehler & Mishra, 2009; Shulman, 1986).

Effective integration of CGIs into geography classrooms also depends heavily on teacher qualification. Well-qualified teachers possess the content knowledge, pedagogical skills, and professional attitudes needed to address the complex and interdisciplinary nature of these issues. Concerning this, Mulenga (2015) stated that qualified teachers can integrate environmental issues more effectively than less qualified ones as they are confident in addressing both factual and conceptual aspects of global challenges. It is also noted that teacher qualifications are among the strongest determinants of education quality. Teachers' teaching experiences also contribute to the effective integration of CGIs in the classroom. Experienced teachers often have stronger

classroom-management skills, broader repertoires of instructional strategies, and greater confidence to adapt curricula, all of which are very important to integrate environmental issues in the classroom. Long-serving teachers also tend to have deeper pedagogical content knowledge about how to sequence lessons and scaffold student inquiry, which supports sustained integration of environmental topics(Hanaysha et alt, 2023).

Another critical factor to consider within the framework of effectively incorporating CGIs within the teaching processes of the classroom is the availability of professional development courses related to CGI. In this regard, it is important to note that teachers must be provided with the necessary teaching knowledge on issues related to the environment. In the absence of such training, the educators are susceptible to difficulties associated with lack of knowledge about the CGI issues, among others, within the teaching processes, which might result in the superficial approach to addressing the issue of the environment, thus leaving the educator unprepared to deal with the task of incorporating the CGI within the teaching processes of the class(Ozsoy, 2012; Yavetz).

Finally, the incorporation of CGIs in the classroom is dependent on the curriculum documents. While quality curriculum documents are important for improving the integration of CGIs in the classroom among the teaching fraternity,lower-quality documents can act as factors against their successful integration (Kimaryo, 2011). This is supported by Kimaryo (2011), who argues that without clear pointers on what to teach and how or what objectives are meant to be met within the context of the various environmental concerns covered in the documents, teachers can face challenges in ensuring their successful integration in the class.

In response to the global emphasis on integrating CGIs into formal education, various countries have included different types of CGIs into their geography curricula. For instance, the US includes topics such as climate change and related disasters like global warming, ice melting, and rising sea levels into school curricula to raise students' awareness (Feldman et al., 2012; Hamilton, 2011). Besides, ecological, environmental, societal, and human–environment issues are embedded in US Geography curricula (Hartemink et al., 2008).

Although many CGIs are integrated into European curricula, climate change and global warming are the most commonly addressed, as they directly impact people's daily lives (Boykoff et al., 2015; Ojala, 2016). In various Asian regions, topics such as climate change and related dis-

asters (UNISDR, 2019), biodiversity loss (WWF, 2015), flooding, drought, famine (Hasan, 2011), rising temperatures, changing rainfall patterns, and sea-level rise (Anon, 1997), devastating storms, glacier melting, soil erosion, and landslides (UNICEF, 2019) are incorporated into geography curricula at all grade levels. Similarly, Sub-Saharan African countries integrate CGIs including climate change, food insecurity, water scarcity and pollution, wildlife and forest loss, biodiversity decline, and drought (Ochieng & Koske, 2013; Rakib, Akter & Majumder, 2016). These countries give more emphasis on these CGIs as these issues are the continent's pressing environmental challenges.

When those continents and regions integrate CGIs into their curricula, they employ different approaches/ models of integration. They use the infusion, single, interdisciplinary, multidisciplinary, and transdisciplinary (whole-school) approach(Bodzin et al., 2010; Palmer, 1998). The infusion approach is the most commonly used model in different countries. In this approach, CGIs related to our environment are integrated into existing school subjects rather than being taught as a separate subject(Palmer, 1998). For example, in biology, CGIs such as loss of Biodiversity and pollution can be integrated, whereas in geography, deforestation, climate change, and drought may be integrated. In the single approach, different CGIs can be integrated in a single subject, like in environmental education with its own syllabus, teaching materials, timetable, and assessment system. In the interdisciplinary model, the integration goes beyond simple infusion. Rather, it deliberately connects CGIs from different subjects around a common environmental theme. For example, a unit of climate change, such as greenhouse gases, may be integrated in science, weather patterns in Geography, impacts of climate change in economics, and so on. Regarding a multidisciplinary approach, different subjects address the same CGIs, but each discipline maintains its own perspective and methods. Finally, in the transdisciplinary approach, CGIs are integrated not only into classroom teaching but also into school culture, management, and community activities. For example, schools prepare school gardening programs.

Although countries' use of different models of integration depends on different factors such as student interest, maturity and abilities, the curricular goals being addressed, the instructional setting, including resources, and the time available for instruction, teachers' knowledge, skills, interests, and educational philosophy, most countries use the infusion approach to integrate CGIs into the school curricula(Palmer, J. A. (1998). In the same vein, research indicates that Ethiopia primarily uses the infusion approach to integrate CGIs into the school curricula**.** This is be-

cause environmental issues are interdisciplinary and can be addressed through multiple subjects(Taye et al, 2024).

When the abovementioned continents and regions integrate CGIs into the school curricula/classrooms using different approaches, they have encountered different challenges, and most of the challenges are teacher-related. These include lack of specialists in the field of Biology, Ecology and Gography(Galvão, 2021; Tiago, 2021), lack of clear objectives for integrating CGIs (Corpuz et al, 2022), less knowledge and skills of teachers on a variety of CGIs and lack of pedagogy how to integrate the issues in the classroom(Benjamin & Adu, 2020; Makokotlela, 2016; Sikhosana, Mudau & Msezane, 2020) and lack of time to cover the contents and do practical activities (Corpuz et al, 2022; Benjamin & Adu, 2020; Makokotlela, 2016). To solve these problems, different countries have attempted to update their teachers' pedagogical content knowledge through continuous professional development programs.

Taking the quest for integration of CGIs underpinned by several international frameworks into account, Ethiopia has also given due attention to addressing CGIs related to environmental problems in its education system(MoE, 1994, 2010, 2015, 2021). The aim of the integration was to conserve our environment for all-rounded development and to make them fruitfully participate in the development and utilization of resources and the environment at large (Akililu, 2010; Hameed, Hailu & Ananth, 2008). The country has also incorporated the integration of environmental problems into its Education Sector Development Programs(ESDPs), which are revised every five years. For example, for the last few decades, integration of CGIs in the school curricula has been given much emphasis in ESDP IV(2010), ESDP V(2015), and ESDP VI (2021). Moreover, the Ethiopian Education Development Roadmap (EEDR, 2018) highlights the need for teachers to link lessons with students' real-life experiences and environments to foster knowledge, skills, values, and behaviors that support sustainability.

Based on this educational objective, the country has incorporated CGIs into the school curricula. Thus, different responsible bodies such as the Federal Democratic Republic of Ethiopia(FDRE), Ministry of Education(MoE), Environmental Authority(EA), and Ethiopian Environment, Forest and Climate Change Commission(EFCCC) have prepared different guidelines to integrate different CGIs into the school curriculum(EFCCC, 2020). The guide shows how each environmental issue should be integrated into each grade level. It emphasizes that Grades 9-12 Geography

and Biology curricula are more appropriate (EFCCC, 2020). The assessment made by different researchers on the progress and problems of integrating environmental issues also showed that the country has integrated CGIs into the curricula of all school levels(Abera, 2018; Aklilu, 2010). Quoting some of the policy statements of Ethiopia, Axen, Mulugeta, and Mulu (1995) underlined that CGIs related to environmental problems have become an integral part of the teaching and learning processes in Ethiopia as a whole. Although the country launched the integration o CGIs into the school curricula, and previous studies indicated that Ethiopia integrated environmental issues in the school curricula, those previous studies did not investigate how well CGIs are integrated into Grade 9 and 10 Geography textbooks, the extent to which Geography teachers integrate CGIs in Geography classrooms, the effects of integrating CGIs on students' literacy of CGIs, and the significant predictors of integrating CGIs into geography lessons. Therefore, this study investigated how well CGIs are integrated in secondary schools' geography curricula and classroom practices, and how the integration of these issues affects students' literacy of CGIs

1.2 Statement of the Problem

Currently, Ethiopia has encountered environmental deterioration and related challenges such as land degradation, soil erosion, deforestation, loss of biodiversity, population growth, climate change and so on. This environmental deterioration has become a common agenda of the country. Thus, with the aim of public awareness raising and promoting understanding of the vital linkage between protecting our environment and sustainable development, Ethiopia has attempted at different times to incorporate environmental education into its education system (MoE, 1994, 2010, 2015; 2021; UNEP, 2007). Curriculum revisions have also been made at each school level at different times, and current environmental issues are incorporated in the school curricula to make the education system relevant to the students` lives and solve environmental problems. For example, in 2010, 2015, and 2021, MoE developed Education Sector Development Programs (ESDPs). In these Education Sector Development Programs, it was recommended that CGIs related to our environment should be incorporated into the school curricula and classroom practices(MoE, 2010, 2015, 2021).

Although the country has attempted to integrate CGIs related to our environment into the school curricula, environmental problems and related challenges persist across the country. For

instance, forest cover has declined from 65% to 2.5% nationally and from 90% to 5.6% in the highland(Haile, 2004; Niang et al., 2014; UNEP, 2013). A recent report by the Ministry of Environment, Forest and Climate Change (MEFCC) and FAO also indicated that there is an estimated average forest loss of 91,000 ha per year in the country (FAO, 2015; MEFCC, 2018). At different times, a high amount of soil is also eroded. Tadesse (2001) reported that about 1.5 billion tons of top soil tis eroded annually. Three years later, Haile(2004) reported that about 20,000–30,000 hectares of cropland were eroded annually. Based on these data, it was forecasted that land degradation could threaten the livelihoods of 10 million highland farmers if future generations lack sufficient knowledge, skills, attitudes, and participation regarding environmental problems(Haile, 2004). This forecast has now become reality. For example, reviewing different articles, Asnake(2024) and Wassie(2020) reported that currently, our environment is highly deteriorated. There is a serious deterioration of land, water, forest, rangeland, wildlife resources and so on. CGIs such as water scarcity and pollution(Awoke et al, 2016) environemtal pollution(Aragaw, 2025), and air pollution(Bizualem et al, 2023) have also become common problems of the country. Simane et al(2016) adds climate change and its related challenges, such as health problems, floods and heat waves, affect the country.

All these CGIs related to our environment affect all spheres of social, economic and political life of the population. Most importantly, the current deterioration of the environment leads to loss of agricultural value and food insecurity (Asnake, 2024; Solomon, 2024; Wassie, 2020). Consequently, severe food crises have occurred several times across the country. For example, in 2002–2003, 13 million people required food aid, and 60,000 died due to food shortages (EUDE, 2016). In 2015–2016, drought and climate change caused severe food insecurity, affecting 10.2 million people (HRD, 2016). Recently, Ayele(2020) found that even if food insecurity in Ethiopia has shown a declining trend, the percentage of food-insecure people (32.7%) is significant.

To the best of the investigator's knowledge, no study has examined whether the curriculum materials developed after the occurrence of such events(deorestation, climate change, soil erosion etc.) investigate how well they are integrated into Grade 9 and 10 Geography textbooks, assess the extent to which Geography teachers integrate CGIs in Geography classrooms, investigate the effects of integrating CGIs on students' perceived literacy of CGIs, and investigate the significant predictors of integrating CGIs into geography classroom practices. This implies that, in Ethiopia, there is a gap in research in investigating how well CGIs related to our environment

are integrated into the school curricula, particularly in the way to develop students' literacy in CGIs, which is necessary to address these challenges effectively.

The prevalence of all the above-mentioned problems related to our environment indicates that the country has faced a problem in integrating environmental education, particularly integrating CGIs into the school curricula. The environmental problems occurring in our local area also indicate that the integration of CGIs into school curricula is not supporting the proper understanding and protection of environmental problems. Previous findings of a few local studies and government reports also reveal that although the curriculum developers and textbook writers integrate CGIs in the school curricula, they do not indicate how well CGIs that recently occurred at the global and local levels are integrated in the school curricula, its effectiveness on students' literacy of CGIs, and the predictive factors that affect teachers' integration. For example, Dalelo (2001) and Dessalegn (1998) assessed secondary school students' awareness of environmental education and their participation in solving environmental problems. The findings reveal that though the students have an awareness of environmental education, their participation in preventing environmental problems is very low. The findings also indicate that the curriculum materials focus on fragmented facts that do not help students learn and solve environmental problems through first-hand experiences by doing, observing, and analyzing the interrelationship and interdependence between people and their environment.

At the global level, many studies also reveal that although many curriculum materials in different countries incorporate environmental education, the curriculum materials of some countries do not incorporate CGIs that have recently occurred at the global and local levels (Benjamin & Adu,2019; Tiago, Rodrigues, & Ramos, 2021). Even the themes and topics of CGIs integrated into the school curricula are inadequate (Budvytytė., 2011; Selby & Kagawa, 2012). There is also a gap between actual environmental problems and the contents of the curriculum materials at all school levels. In addition, it was found that there was a shortage of time, a lack of knowledge on a variety of CGIs, and a lack of tools for the proper transfer of knowledge for the students to integrate CGIs into the school curricula(Loubser & Simalumba, 2016; Mokhele, 2011; Rusinko, 2010; Urba´nska, 2022).

As the integration of CGIs into school curricula, in general, and in Geography curricula in particular, is not yet solved, the integration of CGIs related to our environmental problems has become a concern for many countries and a recent research agenda for many researchers. For this

reason, Ethiopia, in its new Ethiopian Education Development Roadmap Program(EEDR, 2018), stressed that CGIs related to current environmental problems should be integrated in the school curricula and classroom practices in a way they enhance students' knowledge, skills, attitudes and behaviours for the sustainability of the environment(EEDR, 2018). The ESDP VI, developed in 2021, also stressed that the country had to incorporate current environmental problems into its school curriculum materials by revising the weaknesses of the previous ESDPs, such as ESDP IV(2010) and ESDP VI(2015). Thus, the current study assessed how well CGIs are integrated in secondary school Geography textbooks and fills the gaps of previous studies.

Regarding this, previously, studies have been conducted at global and local levels related to the integration of CGIs into the school curricula. Even most of those studies focused on one of the CGIs, climate change. These studies include the intergrations of climate change into secondary school Geography curricula(Aderogba, 2020; Oluwatobi, Adesina & Jammeh. 2019; Sofiyan, Aksa & Saiman, 2019), the impact of secondary school Geography content in mitigating climate change (Chang & Pascua, 2017; Ronald & Merab, 2017), the integration of climate change in Geography curricula and its representations in teaching materials, teachers' ideas about global warming and their roles as curriculum makers(Chang, 2015). Other studies focus on the perceptions of teachers on the integration of water issues(Ruiz-Garzón, Olmos-Gómez & Estrada-Vidal, 2021), the integration of water pollution in Geography curricula(Blum, 2010), soil integration in Geography curricula(Margenot et al., 2016), the integration of natural resource management in the school (Kanyi et al.,2011), the integration of nature conservation and biodiversity in the school curricula(Hoi, 2019), the integration of environmental issues in the Geography curriculum(Campo-Pais *et a*l., 2021) and teachers' perceptions and practices of integrating CC in Geography curriculum(Dlamini, 2016; Huang, 2022).

In Ethiopia, although CGIs related to our environment are common problems, only a few studies have been conducted on the integration of CGIs into school curricula in general and geography curricula in particular. These local studies are not only sparse but also are confined to a few inquiries into issues. For example, Dessalegn (1998) assessed the practice of Grade 11 students in disseminating environmental issues as indicated in the curricula to the surrounding community. The results revealed that though the students have an awareness of environmental conservation, their practices in disseminating the issues were very low. Dalelo (2001) assessed Grade 11 students` awareness and views on the integration of land degradation into school curricula. It was

found that most of the students do not have an awareness of the causes, consequences, and solutions of land degradation, though they have favourable views on the value of natural resources. Dalelo (2010) also assessed the integration of sustainability issues in the geography curriculum for an undergraduate programme at Addis Ababa University. The results show that environmental issues, one of the sustainable issues, are duly integrated into the curriculum, though more of the courses deal with social/economic issues. Dalelo(2011) also assessed the extent and ways in which climate change has been addressed in the geography curriculum guides and students' textbooks for Ethiopian secondary and preparatory schools. Results show that the curriculum guides and students' textbooks for geography provide a huge opportunity to systematically integrate issues related to global climate change. However, the impact of human actions and measures against climate change was given less emphasis. Finally, Dalelo(2012) assessed the integration of loss of biodiversity and climate change into Biology curriculum guides for Ethiopian secondary and preparatory schools. The findings revealed that issues related to biodiversity have been addressed in all grades except grade eleven. However, the revised curricula guides offer little opportunity to integrate climate change issues.

Recently, Delelu(2023) explored school administrators' perceptions and challenges in the implementation of the general secondary school geography curriculum. The findings reveal that school administrators have limited familiarity with the curriculum content, and they have less engagement in the implementation process of the curriculum. This lack of engagement significantly affects the overall effectiveness of curriculum delivery. Dezso(2024) also assessed climate change education in Afar, Ethiopia. The findings revealed that while there is an integration of climate change in the school curricula and a positive attitude of teachers towards climate change education, there are barriers to the full integration of climate change, particularly in articulating details about climate change, and preparing context-sensitive curriculum. Balcha et al (2025) also assessed the status of environmental education in promoting students' sustainable environmental management competencies in Asella secondary schools. The findings reveal that there is a gap in presenting environmental education in the way it enhances students' environmental management practices.

The above-mentioned local and global studies generate some valuable messages for the understanding of CGIs related to environmental problems, and they have some empirical implications for the present study. However, the studies in general focus on teachers' perceptions, beliefs,

practices, and subject matter knowledge about specific CGI presented in the curricula and textbooks. Some of them only focus on the content analysis of the integration of fragment facts of CGIs, such as the causes and consequences of the issues. Thus, the above-mentioned studies have the following gaps compared to the progressive increase of our environmental problems.

First, previous studies did not examine how the content sections, learning objectives, and instructional activities of CGIs are integrated into school curricula. Instead, they primarily focused on the awareness and understanding of teachers or students on the limited CGIs, particularly on climate change. In contrast, the present study investigated the extent and the manner in which content sections, learning objectives, and instructional activities are integrated in secondary school Geography textbooks.

Second, most of the aforementioned local and international studies did not examine how effectively Geography teachers integrate CGIs into classroom instruction, particularly in ways that enhance students' knowledge, skills, attitudes, and participation through the use of diverse teaching methods and information sources. In contrast, the present study investigated how effectively Geography teachers integrate CGIs to develop students' knowledge, skills, attitudes, and participation in CGIs.

Third, previous studies did not examine the effects of integrating CGIs on students' literacy of CGIs. However, the present study investigates how integrating CGIs influences students' literacy in this area.

Finally, previous studies did not examine the predictive factors influencing teachers' integration of CGIs in Geography lessons, but this study examined the predictive factors that affect teachers' integration of CGIs in classroom practices. Therefore, the present study addresses these gaps in the literature by exploring how CGIs should be integrated into geography textbooks and how teachers integrate CGIs into classroom practices to develop students' knowledge, skills, attitudes, and participation. In addition, the findings of this study contribute to the field of geography education by identifying the teaching methods and sources of information that teachers need to employ when integrating CGIs into a particular classroom context, and examining strategies to minimize the predictive factors that may hinder teachers' effective integration of CGIs.

1.3 Research Objectives

The general objective of this study was to investigate the integration of CGIs into secondary school geography curricula (grades 9-10) and classroom practices, and its effect on students' perceived literacy of CGIs. Based on this general objective, the study aims to address the following specific objectives.

- Assess how well CGIs are integrated into Grade 9 and 10 Geography textbooks.
- Assess the extent to which Geography teachers integrate CGIs in Geography classroom practices.
- Investigate the effects of integrating CGIs on students' perceived literacy of CGIs.
- Investigate the significant predictors of integrating CGIs into geography classroom practices.

1.4 Research Questions

The general research question of this study is "How well are CGIs integrated into secondary school geography curricula (grades 9-10) and classrooms, and its effect on students' literacy of CGIs? Based on this general question, the study aims to answer the following specific questions.

- How well do Grade 9 and 10 Geography textbooks integrate CGIs?
- To what extent do Geography teachers integrate CGIs in Geography classroom practices?
- What is the effect of integrating CGIs on students' perceived of literacy of CGIs?
- To what extent do different predictive factors affect geography teachers' integration of CGIs in Geography classroom practices?

1.5 Significance of the Study

The findings of this study will have different uses for different responsible bodies. First, it helps geography teachers to reflect on how their teaching is effective, their ability to integrate classroom lessons with the geographic events that occur at local and global levels, and their use of appropriate teaching methods and sources of information while integrating these issues. This, in turn, gives a hint to geography teachers on how to integrate CGIs that impact the world into the

actual classroom. Second, it helps them to examine pupils' geographical understanding, skills, and attitudes, and identify what the next steps in learning are for them.

For students, it enables them to integrate geography lessons with the real geographical events that occur in their environment. As a result, they can develop their knowledge, skills, and attitudes towards environmental problems. This, in turn, makes them responsible for providing solutions for environmental problems and sustainable development. Curriculum developers will also benefit from this study as it highlights how to incorporate CGIs into school curricula. For the Ministry of Education, it helps to assess the gap between the policy documents and actual practices concerning integrating CGIs in the school curriculum at each school level, based on the levels of understanding of the students and the local context where these issues are more prevalent. Finally, the findings of the study will make a great contribution to the field of geography education. It creates a room to make geography topics often up-to-date or related to current environmental problems. Consequently, CGIs can easily be solved by future generations, and it adds value to strategies that are suitable to teach sustainable development and the projects that schools can start to save our earth.

1.6 Delimitation of the Study

The literature indicates that the concepts and content of CGIs encompass a wide range of social, economic, political, and environmental challenges. However, examining the integration of all CGIs into the curriculum and the geography classroom is complex, as integrating each issue involves integrating multiple dimensions, such as objectives, relevant content, learning activities, teaching methods, sources of information, and so on. For this reason, the study was conceptually limited to assessing how well the selected CGIs related to our environment, namely land degradation, population growth, soil erosion, deforestation, unplanned urbanization, environmental pollution, and climate change, are incorporated into Grade 9 and 10 Geography textbooks and classroom practices. Specifically, the study focused on investigating how well Grade 9 and 10 Geography textbooks integrate the content items, learning objectives, and instructional activities related to CGIs, how effectively geography teachers address CGIs in classroom practice, the impact of integrating CGIs on perceived literacy of CGIs, and the key factors that hinder teachers from fully integrating these issues.

Geographically, the study was delimited to secondary schools of East Gojjam and Awi Administrative Zones, as they are near the place where the researcher lives, and some of these schools are familiar to the researcher. This, in turn, made the researcher collect adequate, valid, and reliable data. The study was also restricted to this study area as the schools in those Zones were functioning in 2022/2023, other than schools found in other administrative zones found in Amhara Regional State. Moreover, the study was limited to Grade 9 and Grade 10 Geography textbooks, as these textbooks were prepared based on the new education policy and the Ethiopian Education Road Map. However, Grade 11 and 12 Geography texts were not prepared and utilized based on the new Ethiopian Education Roadmap in the year 2022/2023(when this study was started to be conducted).

1.7 Limitations of the Study

The main objective of this study was to investigate the integration of CGIs in Grade 9 and Grade 10 Geography textbooks and classrooms. However, the study was conducted in a limited number of functional secondary schools found in East Gojjam and Awi Administrative Zones of Amhra Regional State. Other secondary schools found in Amhara Regional State were not included in the study because of the regional conflict. Therefore, the study would have been more comprehensive if the sample of the study were selected from other schools found in each Administrative Zone of the Amhara Regional State. Thus, to minimize this limitation of the study, the investigator included more than 50% of secondary schools in each Administrative zone. Furthermore, different data collection methods, such as a survey questionnaire, a document analysis, an in-depth interview, and a classroom observation were used to get detailed information and address the research questions. In addition, the study would have been more effective if it had focused on one CGI and how well the content items, instructional objectives, and instructional activities are integrated in the school curricula, and whether each CGI is integrated in the ways it enhances students' awareness, knowledge, attitude, problem-solving skills, and participation on each issue. Although this study incorporated a variety of CGIs, the investigator employed different data collection methods to investigate how each CGI was integrated in the Geography textbooks and classrooms and whether the content items, instructional objectives and learning activities of each issue were integrated in the ways they enhance students' knowledge, problem-solving skills, attitudes, and participation in CGIs.

1.8 Operational Definitions of Terms

Contemporary Geographic Issues	In this study, CGIs refer to current environmental issues/problems such as land degradation, population growth, environmental pollution, climate change, and unplanned urbanization integrated in Grade 9 and 10 Geography textbooks.
Integration	In this study, integration refers to the way and process of incorporating CGIs such as land degradation, population growth, environmental pollution, climate change, and unplanned urbanization into secondary school Geography textbooks and classrooms to solve the problems related to our environment.
Geography Textbooks	In this study, geography textbooks refer to the newly published(2021/2022) Grade 9 and 10 Geography textbooks
Literacy of contemporary geographic issues	In this study, literacy of CGIs refers to students' or teachers' knowledge, attitude, problem-solving skills, and participation in CGIs related to current environmental problems and related issues such as land degradation, soil erosion, deforestation, unplanned urbanization, climate change, environmental pollution, and population growth.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

Introduction

This study examines how CGIs are integrated into secondary school geography textbooks and classroom practices. Accordingly, this chapter focuses on strengthening the understanding of CGIs by drawing on both theoretical perspectives and empirical evidence. The theoretical component addresses the conceptual and historical development of integrating CGIs into school curricula. It also explores the educational roles of integrating CGIs both in the school curriculum and classrooms, models and approaches for incorporating CGIs, and important elements of CGIs integrated in the textbooks and classroom practices. The chapter also examines the gap between educational policy directives on CGI integration and the realities of classroom practice, highlighting experiences at global, African, and Ethiopian levels. Furthermore, it discusses the impact of integrating CGIs on students' literacy of CGIs, including their knowledge, skills, and attitudes, participation, as well as the challenges teachers face in implementing these issues effectively. Finally, the chapter is concluded by outlining the theoretical and conceptual framework that underpins the study. These frameworks, together with the reviewed empirical studies, are intended to guide the research process and provide a coherent lens for analyzing the integration of CGIs into geography education.

2.1 Contemporary Geographic Issues

Contemporary geographic issues refer to pressing environmental problems or events that arise at local, regional, or global scales and are frequently underlined in the media, policy debates, scholarly discussions, and public discourse (Education Service of Australia, 2013). They are dynamic spatial processes that occur over time and across scales (at the local, regional, and global

levels), and the complex interrelations between the environment and human geography (society, economy, culture, governance). These issues are called contemporary as they are pointing to current or emerging environmental problems and dynamics that affect both human beings and the environment at present, or in the near future**.**

These contemporary geographical issues related to environmental problems encompass a wide range of complex and interconnected environmental challenges that affect people and ecosystems around the world. These issues include climate change, air and water pollution, soil and coastal erosion, drought, loss of biodiversity(deforestation), global warming, disasters, waste disposal, famine, food insecurity, child labour and exploitation, coal seam gas extraction, endangered species, flooding, global inequalities, global terrorism, human rights, impacts of tourism, management of river catchments, mining, natural hazards and disasters, population growth, population movements, poverty, rights of indigenous people, salinity, soil erosion, unemployment, urban development, water quality and hunting of wild animals like whale and elephant hunting(Education Services Australia, 2013; CGE, 1992).

These CGIs are limited by both temporal and spatial dimensions. Temporally, these issues may be short-lived or persist over long periods(García-Mira et al, 2005)**,** while spatially, CGIs exist/occur within a limited area. For example, a single neighbourhood may face unplanned urban expansion, or the unplanned urbanization may be extended across national and global levels that impact entire regions or even the entire globe. In addition, some problems, such as a localized pollution incident or a community dispute over land use, capture attention only briefly. Others, like global climate change, remain urgent for decades or even generations, shaping economic policies, environmental strategies, and human behavior worldwide (Education Service of Australia, 2013; CGE, 1992).

Moreover, whether they are local or global, CGIs are not isolated phenomena; they are dynamic, interconnected, and often multidimensional. They affect the social, political, economic, and environmental aspects and produce complex challenges (Binbaşıoğlu, 2004, as cited in Değirmenci & Ilter, 2017). For instance, rapid population growth may lead to high demand for food, water and firewood. This, in turn, causes deforestation, land degradation and loss of biodiversity, which in turn contributes to climate change. This climate change also affects agriculture, health, and public services, which simultaneously demands integrated responses from govern-

ments, scientists, and communities (IPCC, 2022). For example, it is estimated that the Sub-Saharan African population will be doubled by 2050, which in turn results in climate-related challenges like drought, destruction of the ecosystem and biodiversity and so on (UN DESA, 2022).

Because of their scope, complexity and greater impacts on human beings and environments, it is argued that CGIs need widespread attention from multiple stakeholders, including policymakers, researchers, scientists, and citizens whose daily lives are directly affected by these issues. Thus, these issues are forced to be integrated into the school curricula and classroom practices to help the new generation understand the CGIs, and propose informed action for sustainable solutions (Değirmenci & Ilter, 2017; IPCC, 2022; Palmer, 1998).

2.2 The Historical Development of Integration of Contemporary Geographic Issues in the School Curricula

Since the dawn of human existence, there has been a constant and dynamic interaction between people and the natural environment. Through this relationship, human beings have harnessed various environmental resources and achieved remarkable progress across the globe. However, the unlimited uses of the environment to fulfil human needs, human's short-sightedness and self-interest make human beings continuously exploit the environment, which in turn has led to severe environmental challenges (Karthikeyan et al, 2005). Over the past seven to eight decades, particularly following the Industrial Revolution, environmental decline has escalated into a global crisis. As a result, the survival of both our planet and its inhabitants now hangs in the balance, presenting a critical challenge of life and death (UNEP, 2007).

These CGIs related to our environment have affected the political, social, economic, and educational aspects of the world (Dai, 2013; Masih et al., 2014; Wang et al., 2017). Consequently, various measures have been developed by governmental and non-governmental institutions across the globe. For example, a lot of money is invested to address issues related to climate change (Hess, 2021), restore degraded land (UNDRR, 2021; UNCCD, 2019), undertake general watershed management programs (Megersa & Abdulahi, 2015; Naumann et al., 2021), and restore erosion and control desertification (Adessi, 2021).

However, it has been argued that relying merely on these mitigation strategies is neither effective nor sustainable in addressing environmental problems. As a result, the international community has emphasized enhancing the generations' awareness, knowledge, attitudes, skills and participation on the environment. To do this, education has been given great attention to foster this change, and environmental education (EE) was proposed by the International Union for the Conservation of Nature and Natural Resources (IUCN) in 1970 as a means to promote environmental awareness and protection. Since then, several international conferences have taken place at various places and times to strengthen and advance environmental education at the global level. These conferences include the Stockholm (1972) conference, Belgrade (1975) conference, Tbilisi (1977) conference, Rio de Janeiro (Brazil, 1992) conference, Thessaloniki (Greece, 1997) conference, and Johannesburg (South Africa, 2002) conference.

These conferences have played a great role in shaping the global response to environmental challenges. They prepared a framework and guidelines to solve contemporary environmental problems through education. In the conferences, the participants generated and issued environmental education policies, goals, principles, and strategies to be implemented in the education systems of different countries. They also set basic concepts, goals, and principles of integrating issues related to environmental problems in each school's curriculum. For instance, the 1975 Belgrade conference laid the foundation of environmental education and outlined the objectives of environmental education that are integrated into the school curricula and classroom practices. In this conference, it was framed that the goal of integrating current problems related to our environment had to focus on enhancing students' knowledge, skills, attitudes, and commitment to work individually and collectively to protect current environmental problems (UNEP, 1975). The report of the 1977 Tbilisi Conference also set out the goals for environmental education (Palmer,1998). These goals focus on how individuals gain opportunities used to acquire the knowledge, attitudes, and skills needed to protect and improve the environment (UNESCO, 1977).

Based on the principles, frameworks and guidelines set by those conferences, governments of each country agreed that they should integrate CGIs related to environmental problems into their school curricula and education system (Palmer, 1998). Since then, educators, researchers, and practitioners in both social and natural science fields also argued that contemporary issues related to environmental problems should be integrated into related disciplines and classrooms. The-

se stakeholders also believed that bringing the world into the classroom through the integration of CGIs can provide an opportunity to show students what and how they learn about the world. This can also open students' minds to different perspectives and experiences, and make their learning more relevant. Integrating current environmental events also has the power to engage students in subjects they may find difficult, the power to stimulate curiosity, and/or even a desire for social action (Bentley, 2010; Değirmenci & Ilter, 2017).

Taking the roles of integrating current environmental issues into the school curricula and classroom practices in enhancing students' learning into account, geography educators, researchers, and organizations during the early 1980s, particularly in Australia, the United Kingdom, and the USA, recommended integrating current geography issues into primary and secondary school geography curricula and classroom practices. They pointout that the integration of CGIs in geography curricula and classroom practices will be more effective than other subjects, as geography is a subject that incorporates both social and natural science disciplines, and most of the environmental events/problems are directly related to the contents of geography(Holloway, Rice & Valentine, 2003; CGE, 1992).

It is also suggested that CGIs related to environmental problems could easily be solved when they are integrated into the geography curriculum materials and in the classroom practices as Geography is regarded as an important vehicle through which current environmental issues/problems can easily be integrated (IGU, 1992), geography plays a great role in integrating CGIs related to environmental problems as it deals with human-environment relationships(Holloway, Rice & Valentine 2003); it is an interdisciplinary and overlapping subject between natural sciences, social sciences, and humanities so that it can provide a holistic approach to teaching contemporary issues related to our environment. The 2016 IGU Charter Document (IGU, 2016) also indicated that geography is positioned as a core part of any future curriculum, as it builds awareness of key current global social, economic, political, and environmental issues and provides a holistic view of the world.

For the above mentioned reasons, nowadays the subject geography has played a great role to integrated different types of CGIs that are prevalent at the local and global levels(Arın & Deveci, 2008; Değirmenci & Ilter, 2017; Dube, 2012).

2.3 The Prevalence of Contemporary Geographic Issues across the Globe

CGIs related to environmental problems have become the most common problems across the globe. For example, climate change has become one of the major problems that affects all living things across the globe (IPCC, 2018; IPCC, 2023). Research findings reveal that two-thirds of the global population experiences a progressive increase in climate change-related challenges, such as drought(Spinoni et al., 2015; Vicente-Serrano et al., 2014), flooding(Adeaga, 2008; Aderogba, 2012), Global warming, heavy rainfall, storms, coastal floods, and sea-level rise(IPCC, 2023). These climate change factors, in turn, cause food insecurity across the globe. For example, in 2021, from the total of the world's population, about 29.3% them(2.3 billion people) were moderately or severely food insecure, while 828 million people in the world (10.5%) of the world population faced severe hunger (FAO, 2022).

Other CGIs like land degradation and soil erosion (Liew *et al*, 2020; Volk et al, 2013), and loss of biodiversity (Deveci, 2007) also highly affect the environment and human life. For example, 40% of the global land area is highly degraded because of deforestation, overgrazing, over-cultivation, and soil erosion (UNCCD, 2019). This, in turn, reduces agricultural production, which undermines the livelihoods of the people. Deforestation has also become a global agenda across the globe. Tropical and boreal forests are continuously cleared. As a result, forests are shifting in their role as carbon sinks in some regions (Silva Junior et al., 2021)

These CGIs are also more severe in Africa in general, and in Ethiopia in particular. In its history, Africa has been affected by most CGIs related to environmental problems. For example, it has experienced widespread food insecurity several times (Lumbroso, Brown & Ranger, 2016). Among the other continents, Africa stands first in the burden of food insecurity. For example, in 2021, 20.2% of the African population was facing hunger, compared to 9.1% in Asia, 8.6% in Latin America and the Caribbean, 5.8% in Oceania and less than 2.5 % North America and Europe(FAO, 2022). The current estimation also indicates that food insecurity will increase in the coming years because of climate change. Africa has also affected by flooding caused by climate change at different times (Africa Center for Strategic Studies, 2024; Aliyu et al, 2023; Gebremedhin et al, 2020; Meseka, 2024; Ploughe et al, 2019). The content is also known by severe and prolonged droughts (EM-DAT, 2014; European Union, 2025; Masih *et al*, 2014; Nnopuechi, 2021), air and water pollutions(Fisher *et al*, 2021). It has also been affected by

land degradation(Sahara and Sahel Observatory, 2025; Tefera et al, 2024) and environmental pollution(Bekabil, 2020; Fayiga et al, 2018; Ofoezie et al, 2022).

Similarly, Ethiopia has also been affected by different types of CGIs several times. The country has been affected by vulnerable climate change and its related disasters (Kobe. 2203; Niang et al., 2014; UNEP, 2013; Zegeye, 2018). This climate change caused severe drought and food insecurity several times (Alemu & Mengistu, 2019; Dawit & Balta, 2015; EUDE, 2016; HRD, 2016). Because of drought, millions of livestock died, and millions of people suffered from hunger and lack of water supply every year (International Organization for Migration, 2022; OCHA, 2017). The country has also been severely affected by land degradation (Asnake. 2024; Tadesse &Hailu**,** 2024), soil erosion (Tamene et al, 2022; Tsegaye, 2019), and deforestation (Gebru, 2016; Oljirra,2019). Population growth, which is the cause of many of the environmental problems, is also another challenge in the country (Alemu, 2020; Arsiso et al, 2017).

To control/at least minimize the above-mentioned problems of CGIs, different countries integrate these issues in the school curricula and classroom practices to enhance the new generations' awareness, knowledge, attitudes, skills, and participation on the CGIs(Mhlongo, 2017**;** World Bank, 2022).

2.4 Approaches/Models of Integrating Contemporary Geographic Issues in Countries

Different regions or countries integrate different types of CGIs into the school curricula in different approaches and levels. Their approaches to integrating CGIs in the school curricula and classroom practices depend on their contexts or problems related to a particular CGI. Their approaches of integration also depend on student interest, maturity, and abilities, the curricular goals being addressed, the instructional setting, including resources, and the time available for instruction (Bodzin *et al*., 2010; Murtaza & Libin, 2025). Others may integrate CGIs based on the knowledge, skills, interests, and educational philosophy of the teachers, their educational policy, curriculum time frame, and existing school subjects (Ghulam & Libin, 2025). Other countries may integrate CGIs into the curriculum according to their local contexts or the environmental problems they have faced. Even, sometimes, the nature of the topic makes integration natural or even necessary. Some topics inherently cut across subjects (Bodzin *et al*. 2010). Based on these criteria, different countries integrate CGIs using different approaches. These in-

clude the infusion(cross-curricular) approach, the single approach, interdisciplinary approach, multidisciplinary approach, and transdisciplinary (whole-school) approach.

The infusion approach involves integrating CGIs into the different types of existing school subjects rather than teaching all these issues in a particular subject, like environmental education or environmental science, as a separate subject. Thus, different types of CGIs such as climate change, drought, population growth, soil erosion etc. can be integrated in different school subjects such as biology, geography, social studies, language, agriculture, chemistry, health education, home economics, physics, mathematics, history, economics, technology and engineering, safety at work, religion/ethical education, languages and arts(Tiago, 2021; UNESCO, 1978; Tiago, 2021). In this approach, teachers identify relevant topics of CGIs within their subjects and incorporate them into lessons. For example, pollution and loss of biodiversity can be integrated into the biology subject, and biology teachers can integrate them into their classroom practices by identifying opportunities within their subject areas and using different methods of teaching, such as discussion, problem-solving, group work, case studies, or inquiry learning.

. Climate change or land degradation can be integrated into the geography subject, and geography teachers incorporate these issues into their lessons. In the same vein, language teachers may use one of the CGIs, for example, air pollution, for reading and writing activities. Using this approach helps to avoid curriculum overload, promote holistic understanding of the CGIs, demonstrate the relevance of environmental issues across disciplines, and requires fewer curriculum changes. On the other hand, it may lead both teachers and students to give less attention to the CGIs, particularly when they are integrated in subjects such as mathematics and language(Palmer, 1998).

In a single approach, CGIs are integrated into a generic subject in the lower-grade-level school curricula. For example, in primary schools, some countries give environmental education as a single subject and integrate different types of CGIs into the environmental education. In the higher institutions, for example, they may give climate change as a course(Palmer 1998; Rampedi, 2001). In the single approach, environmental education as a separate school discipline is also sometimes introduced in specialized technical schools with relatively short science programs. Although it provides adequate time for environmental topics, ensures systematic coverage of environmental concepts, and facilitates specialized teacher training and assessment, it has

some limitations. It can increase curriculum overload, violate environmental issues from other subjects, and require additional resources and trained teachers(Palmer, 1998). In this regard, teachers can integrate CGIs using different strategies like brainstorming, field trips, problem-solving activities, case studies, demonstrations, and so on.

The third approach used to integrate CGIs into the school curricula is an interdisciplinary approach. In the interdisciplinary model, the integration goes beyond simple infusion. It deliberately connects CGIs from different subjects around a common environmental theme. It helps to combine knowledge of CGIs from multiple disciplines to address environmental issues, and it enables learners to connect concepts of CGIs across subject boundaries and develop comprehensive problem-solving skills(**Jacobs, 1989).** For example, a unit of climate change, such as greenhouse gases, may be integrated in science, weather patterns in Geography, impacts of climate change in economics, and so on. Thus, teachers from different subjects plan around a common environmental issue, for example, deforestation. Thus, science teachers teach effects on biodiversity; geography teachers teach land-use changes or spatial distribution of forests; e**conomics teachers discuss** the costs of environmental degradation. To do this, teachers use the lecture method, demonstration, project work, and field work.

The fourth approaches of integration of CGIs is the multidisciplinary approach. It helps to address CGIs through different subjects while maintaining each subject's disciplinary boundaries. For example, when studying deforestation, science examines ecological impacts, geography examines land degradation, economics examines economic implications of deforestation, and social studies examine social consequences of deforestation. According to Drake and Burns (2004), multidisciplinary integration helps students view environmental issues from multiple perspectives while preserving subject integrity.

The last type of CGI is the transdisciplinary approach. This approach moves beyond subject boundaries, and it focuses on real-life environmental problems and authentic learning experiences. This helps students investigate actual CGIs in their local areas and develop solutions using knowledge and skills drawn from various disciplines. According to Nicolescu (2002**)**, transdisciplinary learning transcends disciplinary boundaries and emphasizes the unity of knowledge in addressing complex societal challenges. This approach is characterized by problem-centered learning, community participation, and action-oriented environmental projects. Thus, teachers

can integrate CGIs in this approach by organizing learning around authentic environmental challenges facing the community. If teachers want to integrate waste disposal in the classroom practices, they can make students investigate local waste disposal practices, conduct interviews with residents, analyze environmental impacts, and design waste reduction strategies.

In general, although different countries used different approaches based on their own context, the infusion approach **is** the most widely recommended approach to be used internationally as it promotes holistic understanding and sustainability-oriented learning without significantly increasing curriculum load.

2.4.1 Integration of Contemporary Geographic Issues in the United States' Curriculum Materials

In the USA, it is believed that younger generations have less awareness of the scientific consensus on the causes of global climate change (Gallup, 2017). These misperceptions about the causes of global climate change (GCC), on the other hand, make individuals less willing to undertake actions to address the problem (Herman, 2014). Thus, the government attempts to integrate GCC into the school curriculum to raise awareness of GCC among its people (Fishbein & Ajzen, 2010). The government also does this, believing that basic knowledge about the serious environmental challenge can be an important building block for motivating behavior change among learners(Newstadt, 2015), and to support the young people's learning about GCC (Nussbaum et al., 2015; Dempsey et al., 2013). In the USA, climate change is also considered the greatest threat to the health of the people. Thus, it is integrating in medical school curricula to teach relevant climate change competencies (Kligler et al, 2021). In addition, global climate change is integrated in the science textbooks, social studies textbooks, and in different global climate change supplemental materials using the infusion approach (Meehan et al, 2018; Ogunseitan, 2022; Siegner & Stapert; Masoudi Sh, 2024).

Although the USA integrate GCC into other school curricula, each state in the USA concluded that geography is an appropriate home for integrating GCC and other current issues because of the interdisciplinary nature of the subject. For example, in the middle school stage of the USA, geography is listed as a subject of knowledge to which skills and attitudes about different envi-

ronmental issues are integrated(Lee, 2021; Miao et al, 2022; Oldakowski & Johnson, 2018). Studies also indicate that integrating soil education in geography has become the common agenda of USA education(Hartemink *et al*., 2008; Margenot et al, 2016). Meehan et al(2018) also examined how USA high school Geography textbooks and supplementary curriculum materials published between 2007 and 2012 integrate climate change, portraying the causes, consequences, and potential responses to GCC. The findings indicate that the materials integrate GCL, and about half of them portray human activity as a major cause of current climate change.

Chang (2015), reviewing several empirical studies, indicated that there are only a few studies that focus on climate change and global warming. Even these studies focus on students' understanding of the process of global warming, its representations in teaching materials, teachers' views about it and teachers' roles as curriculum makers. The results revealed that students do not have much understanding of global warming, and global warming is not well represented in the textbooks. Romàn and Busch (2016) explored that the issues of climate change are not well presented in students' textbooks, although it is the most serious and current global issue.

2.4.2 Integration of Contemporary Geographic Issues in European Curriculum Materials

Because of the 2030 Agenda for Sustainable Development (SDG 13) and the need to take urgent action on environmental problems, European countries integrate GCC in their geography curriculum(Boykoff et al., 2015; Enke & Budke, 2023; Mhlongo, 2024; Ojala, 2015). Teachers are also encouraged to integrate GCC and its related problems into the classroom practices to raise emotional reactions among the learners and make them think about the problem critically(Pihkala, 2017). Tani (2022) also found that integrating climate change with geography education seems more relevant in many ways than other subjects do. Meehan *et al(*2018) explored how both natural and social science textbooks and additional teaching materials designed for upper-secondary-level education integrate climate change. The findings indicated that there were remarkable differences between books. While some emphasized the integration of human role in intensifying climate change, others concentrated more on explaining the principles of climate change as a process, rather than on its effects.

In Italy, Tani(2022) found that environmental and societal problems have increased immensely in recent years. Thus, it was recommended that these issues need to be integrated into geography curricula and classroom practices

2.4.3 The Integration of Contemporary Geographic Issues in Asian Curriculum Materials

In different regions of Asia, a variety of CGIs related to environmental problems occur at different times. To solve these problems, different Asian countries in different regions have integrated these issues into their school curricula, particularly in the geography curriculum. The Dhaka Declaration on Climate Change and the South Asian Association for Regional Cooperation (SAARC) and Action Plan on Climate Change have laid a milestone to integrate CGIs in the Geography curricula(Clement et al., 2021; Das & Bandyopadhyay, 2015).

In Bangladesh, the Education Sector Plan (ESP) states there is inadequate climate-responsive curricula and deficient awareness and training about climate change(Das, 2010). In light of this, Chowdhury(2014) revealed that school textbooks that integrate environmental issues were ill-organized and lacked integrity for logical progression. Thus, Bangladesh's Education Sector Plan for fiscal years 2020/21 – 2024/25 has planned to integrate CGIs such as climate change, pandemic diseases, disasters, and emergency responses such as flooding, drought, famine, etc., in its education system.

In Nepal, different kinds of CGIs related to environmental problems such as disasters and disaster reduction, climate change, wildlife conservation, biodiversity loss, and sustainable development issues have been integrated into secondary school curricula, particularly in geography curricula (Bhuiui, 2017). However, the basics of climate change were not addressed in the syllabus. Thus, in 2018, the government, in collaboration with Wildlife Conservation, integrated the Green School Program, emphasizing inducting local conservation and environmental issues into the national curriculum.

East Asia and the Pacific Region (EAPR) is one of the most vulnerable regions to climate change and its related disasters. As a result, half of the population is directly affected every year by climate change-related factors such as floods, droughts, land degradation, high temperature, rising sea levels, storms, heavy rainfall events, El Niño, melting glaciers, rising sea levels, rapid deforestation, soil erosion, landslides, and environmental deterioration etc. (UNICEF, 2019). Thus, the country integrates climate change into different school curricula, including geography curricula. However, in other Asian countries, it was found that climate change content does not

appear in the curricula(Ndiritu *et al*, 2016; Dlamini & Shongwe, 2015, cited in Ronald & Merab, 2017).

In Indonesia, Sofiyan, Aksa and Saiman (2019**)** found that the topics of climate change in the syllabus are a bit and are also dominated by aspects of cognition of climate change. Consequently, the teachers face the difficulty of teaching the contents at the maximum level, as the teacher's understanding of the concept of climate change is very limited.

2.4.4 Integration of Contemporary Geographic Issues in African Curriculum Materials

The countries in the Sub-Saharanregion of Africa, too, are highly impacted by different sorts of CGIs, such as food insecurity, pollution, biodiversity, drought, and so on. Studies indicate that the major cause for most of these challenges has been climate change (Adesete et al, 2023; Müller et al, 2014; Serdeczny et al, 2017). Taking this problem into account, Chirambo(2018) & Das & Jan (2025) highlight that there is a need for raising awareness for the community to control the impact of climate change.

In West Africa, climate change has also affected different countries. Therefore, they have taken raising awareness for the people as a major solution. For example, Namibia values geography subjects highly to link CGIs to comprehend & resolve the environmental problems sustainably. In light of this, Ashipala(2021) investigated the attitudes of teachers towards the inclusion of CGIs concerning environmental issues. From the study, it has been found that despite having good attitudes, the experience with respect to the concept & implementation in the classrooms remains scarce. Also, it has clearly shown that the students are not engaged effectively in identifying & investigating different sorts of environmental questions.

In East Africa, different countries have also integrated different CGIs into their school curricula. For example, in Kenya, it was found that climate change contents are integrated into the school curricula, particularly in the geography curricula of secondary schools, although there are some challenges to integrating this issue (Apollo & Mbah, 2021; Fitzpatrick & Amenya, 2023). Kariuki (2017) also found that climate change content in the sampled subjects was integrated inade-

quately. In central Africa, for example, in Zambia, Muchanga and Nakazwe (2015) found that climate change is included in the curriculum of Zambia as a separate topic. However, it does not provide any definition of the concept of climate change. The curriculum outlines only globalized causes, effects, mitigation measures, and their impacts in the very simplest way. The study also indicated that the lack of contextualized content in climate change coverage would affect the integration.

In South Africa, governments, educators, and researchers have also discussed the mitigation strategies of CGIs such as climate change, acid rain, ozone depletion, greenhouse effect, global warming, flooding, waste disposal, and so on. One of the solutions they have taken is integrating these issues into the school curricula, particularly in geography, biology, and physics (Sunassee *et al*., 2012). However, studies reveal that there were problems with contextualizing the integration. Teachers also made little attempt to make a connection between geography content and local environmental issues within the daily life experiences of the learners (Raselimo, 2014). Makokotlela (2016) also found that teachers do not integrate CGIs related to environmental problems in the curriculum, as there was no real plan of what the integration aims to achieve. Authors like Zaini and Ita (2020) found that the lack of knowledge from teachers on what environmental issues include affects their integration. Another researcher, Velempini (2017), investigated the impact and the integration of environmental education in secondary school geography curriculum, and the findings reveal that climate change is included in the curriculum, but many teachers cannot teach it.

2.4.5 Integration of Contemporary Geographic Issues in Ethiopian Curriculum Materials

Ethiopia has also been affected by many of the CGIs**.** From the different types of CGIs**,** climate change and its related disasters take the lion's share. Climate change in Ethiopia affects rainfall patterns. It also causes El Niño. This, in turn, causes food insecurity, malnutrition, and the death of animal and plant species across vast regions of the country. For example, insufficient rainfall in 1984 caused the death large number of people, children, and livestock in the northern part of Ethiopia. This problem had become the cause of the death of 200,000 livestock and 400,000 to 1 million people, respectively (Dawit, 2015). From 1999-2000, of the total population, 16% needed food aid (European Union Delegation to Ethiopia, 2016). From 2002-2003, the country faced a severe food crisis, and 13 million people needed food aid. Thus, the shortage of food rose to

20% (European Union Delegation to Ethiopia, 2016). From 2015- 2016, the El Niño phenomenon caused the worst drought in decades and severe food insecurity. About 10.2 million people required urgent food assistance (Humanitarian Requirements Document, 2016).

In 2016, more than 500,000 livestock died, and millions of people were in urgent need of food and water supply. A low amount of rainfall in 2017 led to severe water shortages, disastrous livestock losses, and low crop production throughout the country. Some 5.6 million people in the northern part of Ethiopia required emergency food. The problem is still severe (OCHA, 2017). The drought that occurred at different times has also highly affected the environment. Land degradation, soil erosion, deforestation, and loss of biodiversity are also common in Ethiopia. The Ethiopian dry lands in general and the agriculture sector in particular have been identified as vulnerable to climate variability and land degradation (Niang et al., 2014; UNEP, 2013).

Thus, taking these environmental problems and the quest for integrating CGIs into formal education underpinned by several conferences, seminars, and international frameworks into account, the country has given great attention to addressing environmental problems by integrating them into the school curricula. Thus, the country developed the Education and Training Policy (ETP) with different aims and objectives in 1994. One of the major aims is conserving the environment for all-rounded development and bringing up citizens with the necessary productive, creative, and appreciative capacity to participate fruitfully in the development and utilization of resources and the environment at large (MoE, 1994). In relation to the current environmental problems, the country set two objectives to address environmental problems. These objectives are:

- To promote education that can produce citizens who possess a national and international outlook on the environment, protect natural resources and historical heritages of the country; and
- To provide education that can produce citizens who have developed attitudes and skills to use and protect private and public property appropriately (MoE, 1994).

As indicated in the policy document, the aims and objectives of the education policy were to make the education system include local, national, and global environmental problems and solutions for sustainable development (MoE, 1994). The new Ethiopian Education Development Road Map (EEDR, 2018) is also framed to universalize education and meet the global target for

2030 which is used to fulfil sustainable development goals (SDGs), a set of objectives within a universal agreement to end poverty, protect all that makes the planet habitable, and ensure that all people enjoy peace and prosperity, now and in the future.

The country also assured that education in the 21st century should focus on addressing the present intense environmental and societal problems to bring sustainable living in the world (MoE, 2010, 2015, 2021; NAAEE, 2001). The call to integrate current geographic issues into formal education has long been expressed in the global Agenda 21, and it emphasized that education can play a great role in addressing current geographic/environmental issues. Thus, the question of how contemporary geographic issues related to environmental problems are integrated into the curriculum is in the interest of Ethiopia. Consequently, some studies have been conducted on the integration of CGIs in the Ethiopian context, which will be discussed in the empirical studies part of this literature.

2.5 Geography Curricula and Integration of Contemporary Geographic Issues

The integration of different CGIs into the content area subjects, such as geography, biology, chemistry, physics, history, social studies, arts, etc has become a recent global agenda. However, geography is preferred to integrate these issues by different countries. There are different reasons why geography is preferred over other content subjects to integrate CGIs related to our environment. First, Geography incorporates or bridges the knowledge of multiple sciences. This gives geography the advantage of connecting natural (e.g., biology, ecology, climatology, and geomorphology) with social and human (e.g., education, demography, social studies) sciences (Pereiraa & Zhao, 2025). This, in turn, makes different CGIs, such as climate change, land degradation, soil erosion, deforestation, etc., have stronger alignment and compliance with geography education (Cobbinah & Addaney, 2019; Farbotko, 2017; Onda &Tewari, 2021; Pease et al., 2019; Setten & Lujala, 2020). Meadows (2020) also states that the interdisciplinary nature of geography (social and natural sciences) solves problems caused by nature and human activities (Kasimov, Malkhazova & Romanova, 2005; Meadows, 2020).

This alignment, on the other hand, makes geography take a leading role in integrating different types of CGIs in its curriculum materials and classroom practices. Farbotko (2017) also adds that geography has a significant role in integrating climate change into policies and classroom practices more than other subjects do. Black et al. (2020) also add that sinces Geographic analyses are invaluable to understand coastal pollution dynamics, it is better to integrate issues related to environmental pollution into Geography curricula and classroom practices.

Second, geography, by its nature, studies the interaction between humans and the environment. It examines how human beings modify, adapt, use, and depend on the environment. It analyzes how the environment shapes human beings and their day-to-day activities (IERE, 2025). It examines how CGIs such as desertification, loss of wetlands, drought, deforestation, etc., are caused by human beings, and how these issues affect the lives of human beings (Adamson et al., 2018; Grzymala-Kazlowska & Phillimore, 2018). Likewise, Potter & Unwin (2017) state that although some arguments have undermined the significant contributions of geography to human adaptation on earth, geography in practice provides a clearer understanding of learners about the human-environmental interactions, the consequences of these interactions, and the sustainability of human societies on the environment. Thus, when these human-environmental activities and their consequences are integrated into geography curricula and classroom practices, the new generations can understand how geographic information corresponds to life, and they can gain different perspectives for their future lives by concluding real-life examples.

Third, it is acknowledged that geography provides an appropriate vehicle for education for sustainable development (ESD) through its content and methodology. For this reason, it is conceptualized as a broad version of education for sustainable development (Tilbury, 1997; UNESCO, 2005). Nearly all the 'action themes' highlighted in the United Nations Decade of Education for Sustainable Development declarations, like environment, water, sustainable consumption, climate change, disaster, loss of biodiversity, etc., have geographical dimensions. IGU (2007) also proposes that the paradigm of sustainable development should be integrated into the teaching of Geography at all levels and in all regions of the world.

From the above discussion, one can infer that the subject geography helps to raise awareness about the effect of humanity on nature and to shape their decisions regarding nature. This means that, as a geography subject that provides knowledge and skills through which students function

as responsible members of their respective environment, there is a need to incorporate CGIs related to our ever-changing nature within geographic studies.

2.6 Components of Contemporary Geographic Issues Integrated into Geography Textbooks

It is recommended that when CGIs related to our environment are integrated into the school curricula, they should include different things. These include CGIs that are prevalent at the global and local levels, the instructional objectives/learning outcomes of a particular CGI, the different content items of CGIs, the learning activities, different types of pedagogies used to teach each CGI, and sources of information(Palmer, 1998; UNESCO-UNEP, 1975). Thus, in the following section, these components of CGIs integrated into the school curricula and classroom practices are discussed.

2.6.1 Integrating the Learning Outcomes of Contemporary Geographic Issues

In the different conferences held at different places and times, it has been framed that the main goal of integrating CGIs related to the environment is to make the world's population have good knowledge, attitudes, skills and participation in the environment. For example, the 1975 Belgrade Chartacr developed a framework for environmental education which focused on making individuals or social groups have adequate knowledge, skills, attitudes, and commitment to work individually and collectively toward solutions to current problems (UNESCO-UNEP, 1975). On the basis of this framework, different educators and organizations reported that when any CGI related to our environment is integrated into the school curricula and classroom practices, it should incorporate the four learning objectives of CGIs related to our environment. These include knowledge, attitudes, skills and participation towards that particular issue (Palmer, 1998; Selby & Kagawa, 2012; UNESCO-UNEP, 1994). Roth (1992) also revealed that the idea of environmental literacy has four basic dimensions, such as knowledge, attitudes, skills and behaviour towards a particular environmental issue.

Palmer (1998), Spork (1992), and Sonneborn(1994) also reported that when a particular environmental issue is integrated into the school curricula or classroom practices, it should focus on education in, about, and for the environment, as these represent the central aims of environmental education. While education about the environment is mainly intended to develop knowledge

and understanding of the environment and related issues, education also emphasizes developing skills used to solve environmental problems. On the other hand, education for the environment is intended to develop positive environmental attitudes, values, and commitment to pro-environmental behavior and sustainable activities. Selby and Kagawa (2012) also pointed out that since the ultimate objective of integrating environmental education in the curriculum materials and classroom practices is to foster comprehensive student learning outcomes that equip learners to understand, analyze, and respond effectively to pressing environmental challenges, curriculum developers or textbook writers need to incorporate education about, in and for the environment.

When the above mentioned objectives of merging the CGIs connected to our environment are effectively integrated in the Geography curriculum and classroom activities, the learners can develop their awareness, concerns, understanding and behavior regarding the environment(Roth, 1992). At the awareness level, the individual learner begins to recognize the linkage that exists between nature and man, and the significance of the linkage to the survival of life. At this level, the individuals are also concerned about the issues related to their environments, such as degeneration of the land, pollution of the environment, or global warming. At the understanding level, the individual is able to clearly comprehend the current issues that exist in the environment today as a result of nature and man; thus, the person can come up with a wide range of ideas and make decisions on how to solve the problems associated with the environment. At last, at the behavior level, the individual begins to implement measures on how to solve the problems associated with the environment through the use of the wealth of knowledge and skills that he has developed from previous behavior regarding the environment.

The above discussion implies that whenever a particular CGI related to our environment, for example, climate change, land degradation, or environmental pollution is integrated in the school curricula, the four learning outcomes of the issues knowledge, attitudes, skills and participations towards that particular issue should be included in the geography curricula. In the same vein, when the teachers teach a particular CGI, for example, climate change, he/she needs to present it in a way to enhance students' knowledge, attitudes, skills and participation toward that issue. The following section discusses how each of the learning outcomes of CGIs related to our environment is integrated into the school curricula and classroom practices.

2.6.1.1 Integrating Objectives Related to Knowledge of Contemporary Geographic Issues

Knowledge of CGI related to our environment is defined by different educators**.** Huckle and Sterling (1996) define knowledge of CGIs or current environmental issues as an understanding of current environmental problems, their nature, definitions, causes, consequences, and potential solutions to the issue. It also includes an understanding of their complex systems, interdependencies, and the political, economic, and social dimensions of environmental problems.

Having good knowledge of CGIs related to our environment has several advantages. It helps to solve environmental problems caused by human beings(Ehrlich & Ehrlich, 1990), change patterns of overconsumption on the environment(Ehrlich et al., 1997), and allow individuals more economic output with less physical input(Chichilnisky, 1998). Having good knowledge of CGIs related to our environment has different roles in protecting the environment. It promotes pro-environmental attitudes and behaviors of the individual or community about their environment. People become responsible in protecting their environment, for example, by managing the waste, recycling resources, conserving natural resources and so on(Jiang et al, 2025; Liobikienė & Poškus, 2019).

Considering the role of having good environmental knowledge in protecting the current environmental problems, researchers recommend that objectives related to environmental knowledge should be integrated into the school curricula and classroom practices. For example, IPCC (2023) reported that when climate change is integrated into the school curricula and classroom practices, content items such as climate system basics, human and natural causes, historical trends, short and long-term impacts, and adaptation strategies should be included under the topic climate change.

Palmer (1998) also adds that when ccurriculum developers, textbook writers and teachers integrate a particular CGI, for example, climate change or land degradation, objectives that focus on developing students' knowledge about the issues should be included. In light of this, Suralin(2023) found that teachers gave more emphasis on enhancing students' knowledge of CGIs when they integrate CGIs such as climate change, loss of biodiversity, and pollution. For this reason, students have shown significant improvements in their understanding of environmental issues. Liobikienė and Poškus (2019) explored the inclusion of cognitive knowledge objectives

used to enhance the environmental knowledge and pro-environmental behaviour of the learners. The findings reveal that environmental knowledge plays a great role in enhancing students' pro-environmental behaviour. Sendawula et al (2024) also found that the inclusion of environmental knowledge objectives significantly explains the environmental sustainability practices of manufacturing mechanisms, and it is significantly related to regulatory compliance mechanisms. Consequently, instructional objectives used to enhance students' knowledge of CGIs related to our environment should be integrated appropriately.

2.6.1.2 Integrating Objectives Related to Attitude of Contemporary Geographic Issues

Attitude is a form of behavior an individual made on certain cases. It is a continuous belief and feeling which leads people to develop positive feeling to specific people, objects, events or organizations. In relation to environmental attitude, Kışoğluet al (2010) define it as a degree of taking society's moral and ethical values into consideration, as well as having sensitivity towards the environment and current environmental issues when making decisions about the environment and exhibiting responsible environmental behaviors.

Having a good attitude towards the environment has several uses. It enhances learners' **s**tewardship and responsibility for problems related to our environment (UNESCO, 2025). It also helps learners develop feasible solutions and actions to avoid despair (UNESCO, 2024). Others also reported that developing positive attitudes and personal qualities towards the environment contributes to appreciation of and care and concern for the environment and for other living things (Palmer, 1998).

As a result, it is argued that objectives that enhance learners' environmental attitudes need to be incorporated in the school curricula and classroom practices. It also makes individuals sensitive to the environment, develop pro-environmental behavior and make individuals solve environmental problems (Wang et al., 2021; Wu et al, 2024). It is also pointed out that since learners' attitude towards the environment begins at the early stage, objectives related to environmental attitudes should be incorporated in the school curricula (Torroba Diaz et al.,2023; Zeng et al., 2023). Zeng et al (2023) also added that when one integrates a particular issue in the school curricula and classroom practices, he/she needs to build a sense of responsibility, empathy, and ethical concern for the environment by focusing on environmental attitudes.

However, it is argued that the treatment of attitudinal and dispositional outcomes in many educational settings remains superficial or tokenistic. They are often acknowledged in theory but insufficiently embedded in practice (Selby & Kagawa, 2012**)**. Gezer and Erol (2006) also add that although having positive attitudes on a particular thing has a significant role in acting, environmental issues are not a barrier to enhancing human attitudes and taking actions. Thus, educators must create learning experiences that provoke reflection and moral reasoning, helping students internalize sustainability value.

From the preceding discussion, it is apparent that positive environmental attitudes could play a significant role in cultivating a person or a group of learners with a high level of concern or a proactive approach towards environmental protection and enhancement by carrying out a specific set of favourable behaviors towards the environment. Thus, there is a need to improve the environmental attitudes of the learners by incorporating attitudinal goals in the classroom or into the school curricula.

2.6.1.3 Integrating Problem-Solving Skills of Contemporary Geographic Issues

The other outcome students expected to achieve through the integration of CGIs is developing problem-solving skills of CGIs related to our environment**.** These skills include skills of observing environmental phenomena, and asking analytical questions(UNESCO, 2021), systems thinking skills which focuses on the ability to understand relationships among ecological, social, and economic components, research and investigation skills, skills of observations and experimenting, data gathering skills, skills of analyzing data using scientific procedures, and skills of making decisions through evidence-based(UNEP, 2022). Sterling (2021) also adds that collaboration and communication skills (Schultz et al., 2021), competence and practical problem-solving (Breiting et al, 2020), and ethical reasoning and value-based problem-solving are part of problem-solving skills.

Having different problem-solving skills related to our environment has different uses. For example, Tilbury (1995**)** states that developing problem-solving skills of our environment helps individuals or social groups to evaluate environmental issues, contribute meaningfully to discussions and solutions, and engage with real-world environmental issues. Environmental problem-solving skills also enable individuals and communities to understand, analyze, and respond effectively to environmental challenges(UNESCO, 2021), help communities adapt to and mitigate

problems related to CGIs such as climate change, drought, land degradation, pollution, etc.(IPCC, 2022), and improve an individual's or a group's environmental stewardship and pro-environmental behavior.

Taking the different roles of developing problem-solving skills of our current environmental problems into account, educators and researchers recommend that instructional objectives related to our environment should be integrated into the school curricula (OECD, 2021a; Pennock & Bardweil, 1994; UNESCO, 2024). For example, OECD (2021a) recommends that when CGIs related to our environment are integrated in the school curricula and classroom practices, objectives related to key skills and competencies should be integrated. These objectives focus on enhancing the learners' **s**cientific literacy and systems thinking skills that help learners to interpret data, read graphs, connect drivers to impacts, and incorporate feedback loops. UNESCO (2024) also adds that objectives should focus on critical thinking and media literacy skills that are used to assess sources, identify misinformation, and evaluate claims about causes or solutions of each issue that needs to be developed. Pennock and Bardweil(1994) reported that when current environmental issues are integrated in the school curricula and classroom practices, they should be presented in a way they develop the students' skills, such as resource gathering skills, organizational skills, decision making skills, facilitating skills, critical thinking and conflict management skills.

2.1.6.4 Integrating Objectives of Participation in Contemporary Geographic Issues

Finally, objectives related to participation need to be included in the geography curricula. The main objectives of including these objectives are to increase the active involvement of the learners in solving environmental problems. In this respect, UNESCO (2005) asserts that participation is one of the key learning outcomes, not just for demonstrating applicability in knowledge and skills, but also for developing one's sense of agency and empowerment among learners. The inclusion of participation in environmental protection in learning objectives will promote a sense of responsibility and timeliness in addressing environmental issues among learners, in addition to taking proper measures to address them.

Therefore, it is recommended that when curriculum materials, for example, textbooks, integrate any of the CGIs related to environmental problems, they should include these core objectives(Unesco-UNEP, 1975). For example, the 1975 Balglare framework outlines that educating

the citizens about environmental problems should be a continuous life-long process, both in-school and out-of-school. Thus, when problems related to the environment are integrated in the school curriculum, it should focus on enhancing students' participations on environmental problems. To do this, students should engage in sustainable projects, environmental clubs, clean-up campaigns, advocacy initiatives, and civic activities, and appropriate objectives should be designed(Palmer, 1998).

On a general note, the above discourses suggest that through the integration of the above outcomes of CGIs related to our environment (knowledge, skills, attitudes, and participation) in the school curricula and class environments, it is possible to ensure that the integration of CGIs in the school curricula is meaningful as well as a tool towards social transformation in a broader sense. By achieving this, students would in effect be more likely to participate in environmental protection activities in their communities and become agents of change to address different types of environmental issues relevant to contemporary settings in this new age of the 21st century, which is not only witnessing increased global environmental disasters but is also at a critical point in its approach to environmental issues..

2.6.2 Integrating Content Items of Contemporary Geographic Issues into Geography Curricula and Classroom Practices

Content items are the other components of CGIs integrated into the school curricula and classrooms. For example, when CGIs like climate change, population growth, environmental pollution, land degradation, etc., are integrated in the Geography curriculum materials and classroom practices, different concrete content items of CGIs, such as core concepts, definitions, causes and trends, local and global impacts, mitigation pathways, and adaptation and resilience strategies of the issues, should be incorporated. For example, the IPCC(2023) report indicates that when climate change is integrated into the school curricula, the school curricula need to incorporate its related concepts, its current status and trends, its causes, widespread impacts and risks, mitigation and adaptation strategies, and long-term responses. In addition, it should incorporate the interdependence of climate, ecosystems, biodiversity, and human societies. UN(2021) and WHO (2022a) also exemplified that when environmental pollution is integrated in the school curricula, content items such as air pollution, water pollution, soil pollution, waste, plastic, litter, and their causes, consequences and mitigation strategies need to be integrated.

When the content items of each CGI are integrated in the school curricula and classroom practices, they need to be integrated in a way they enhance the learners' knowledge, attitudes, skills and participation of CGIs related to the environment (IPCC, 2023; OECD, 2025; UNESCO, 2024). Palmer(1998) also emphasizes that when current environmental problems are integrated into the school curricula, they should focus on " education *about* the environment", which emphasizes on enhancing the learners' knowledge on a particular issue/concepts, "education *in* the environment" which emphasizes on learning the environmental issues through interaction with environment and developing skills used to solve problems related to our environment, and "education *for* the environment" which is used to promote learners pro-environment behavior.

On the other hand, studies indicate that many curriculum materials and teachers heavily focus on education about the environment. Less attention is given to education in or for the environment, action, values, and skills (Hussen, 2018). Other local studies reveal that although environmental education is the main core point in the educational policy of Ethiopia, implementation often remains teacher-dominated and indoors-based. It mainly emphasizes enhancing students' knowledge of the issues. However, outdoor activities and hands-on environmental engagement, for example, gardening, clean-up, waste segregation, etc., are very rare (Gugsa, 2023). Gugsa(2023) also found that many teachers try to integrate environmental topics, but they often revert to textbook-centered teaching rather than experiential learning.

2.6.3 Integrating Instructional Activities in Geography Curricula and Classroom Practices

Instructional activities refer to the tasks, exercises, or learning events that students engage in under the guidance of a teacher or curriculum materials to achieve specified learning objectives. Different types of instructional activities enhance the integration of CGIs in classroom practices (UNESCO, 2024). The first types of activities are action or experience-based learning activities. Atypical examples of these instructional activities are fieldwork, school gardens, and eco-projects (Becker et al., 2021; Breiting et al., 2020). In such kinds of activities, students can learn about any of the CGIs by observing problems related to CGIs and taking actions to solve environmental challenges. For example, when students learn about deforestation or environmental pollution, they learn by hands-on work, for example, through participating in school gardens, tree planting, waste audits, and water-quality testing. This way of learning makes the learners build environmental knowledge, skills and pro-environmental behaviour more reliably than a

lecture alone. In addition, engaging in these activities connects curriculum content to local problems and produces observable outcomes that students can care about (UNESCO, 2024).

The second type of activity is project-based learning. In these activities, learners are encouraged to explore real environmental problems over multiple lessons and identify the causes, consequences and solutions for those problems and report to the class or the concerned bodies (Lam et al.,2020). These types of activities help learners have a deeper understanding of the CGIs related to our environment, develop collaboration and problem-solving skills about the issues. For example, in the classroom, students can design a local climate-resilience plan for their community. In this regard, they assess risks, interview stakeholders, propose low-cost adaptation actions, and present this plan to the local council (UNCEF, 2022).

Inquiry-based learning is the other type of instructional activity used to promote students' knowledge, skills, attitudes and participation on environmental issues. When the learners engage in this type of activity, they generate questions, test hypotheses, analyze evidence and draw conclusions (Katsampoxaki-Hodgetts et al., 2022). It fosters critical thinking and scientific literacy in evaluating data or understanding uncertainty on a particular issue. For example, if soil erosion is integrated in the classroom, the teacher makes the students inquire how different soils retain water, relate results to erosion and land-use, and link findings to local agricultural practices.

Engaging the learners in activities related to service-learning and community service also plays a significant role in integrating CGIs in the classroom practices and curriculum materials. They play a great role in combining curricular goals with community service (O'Connor et al., 2020; Nasution & Syafii, 2021; Schultz et al., 2021). For example, if there is an issue with the scarcity of water, students can be involved in restoring a local wetland. This, in turn, builds civic competencies and links environmental learning to social justice and local needs. In addition, the student team can engage with a local non-governmental organization to map flood-prone areas, develop school disaster plans, and run preparedness workshops for neighbours.

UNESCO (2024) also adds that action-oriented and experiential learning activities should be presented in the school curricula in a way they develop the learners' knowledge, attitudes, skills and participation in each type of CGIs. If these activities are not integrated into the classroom practices and the geography curricula, the learning objectives of current environmental problems are not achieved. For example, Sterman et al (2015) found that climate change communication

efforts grounded in the information deficit model have largely failed. Thus, simulations have been proposed to enable people to learn for themselves about this complex and politically charged topic. The findings reveal that simulation and role play are used as a climate change communication tool, and the activities enable people to learn and feel for themselves, and motivate the people to take action against climate change. Although there are difficulties in using games to educate learners about climate change, it has become an innovative instrument to bridge the gaps between education and climate change action(Fernández Galeote & Hamari, 2021; Razaliet al, 2022).

From the above discussions, it is possible to conclude that incorporating relevant instructional activities into geography curriculum materials plays a great role in enhancing learners' knowledge, attitudes, skills and participations of the CGIs. As a result, there is a need to include these issues in geography curricula and classroom practices in a balanced way. In addition, the discussion indicates that the activities integrated into the geography curricula should be crafted to directly support the specific learning goals of the environment (knowledge, skills, attitudes and participation) that the curriculum or teacher has set.

2.7 The Effects of Integrating Contemporary Geographic Issues on Students' Literacy of Contemporary Geographic Issues

Nowadays, the world has faced environmental challenges such as climate change, loss of biodiversity environmental pollution, deforestation, land degradation and so on. Thus, the integration of CGIs related to our environment into school curricula has become the common global agenda believing that it enhances students' literacy of CGIs (Palmer, 1998; Roth, 1992). The conferences held at different places and times(Stockholm in1972 and 2022; Belgradein 1975; Tbilisi , 1977; Rio de Janeiro in 1992 and 2012; Thessaloniki in 1997; Johannesburg in 2002, and Montreal in 2022), and numerous international organizations(UNESCO, 1978, 2020) also emphasized that integrating current environmental issues into formal education significantly contributes to students' environmental literacy by enhancing their environmental knowledge, problem-solving skills, positive attitudes, and active participation in environmental conservation activities.

2.7.1 Effects of Integration on Students' Knowledge of Contemporary Geographic Issues

One of the primary objectives of integrating CGIs related to our environment into school curricula is to improve students' understanding of concepts of CGIs, their causes, consequences, and solutions to the problems of such issues. It also includes understanding the challenges caused by CGIs, human-environment interactions, and sustainable conservation practices of our environment. To enhance students' knowledge, UNESCO (1978) states that integration of CGIs into the school curricula helps learners acquire knowledge and understanding of the CGIs and their associated problems. Through curriculum integration, students gain scientific and social knowledge about CGIs such as climate change, pollution, soil degradation, water scarcity, biodiversity loss, and so on. Palmer (1998) also argues that integration of CGIs enables learners to understand the complexity of the issues in their relationships between human activities. Similarly, Hungerford and Volk (1990) noted that having knowledge of CGIs serves as a foundation for developing environmentally responsible behavior because individuals are more likely to act appropriately when they understand environmental problems and their causes.

Research conducted by Erdogan, Kostova, and Marcinkowski (2009) found that students exposed to CGIs demonstrated significantly higher levels of knowledge on CGIs compared to those who did not receive such instruction. In the same vein, Volk and McBeth (1997) reported that curriculum-integrated environmental education enhances students' understanding of environmental issues. Local studies also indicated that the integration of environmental education in the school curriculum enhances students' awareness and knowledge about principles underlying the generation and use of energy(Gebeyehu et al, 2025). Analyzing 105 studies, Ardoin et al (2025) also found that integrating environmental education has a positive effect on students' learning outcomes of the environment. Bozdogan etal (2016) also found that students' awareness and knowledge of environmental issues were very high, although their knowledge and awareness vary in each type of environmental issue. Suralin (2023) also found that results from pre- and post-intervention assessments indicated significant improvements in environmental knowledge and awareness among students.

Although several studies indicate that integration of environmental issues in the school curricula has its own effect on students' knowledge of the issues, other studies reveal that the effect is not significant. For example, Gebrekidan(2024) found that knowledge of the environment is not sufficiently addressed to the students at each grade level, as environmental education is not covered sufficiently and in-depth in the school curricula and classroom practices. Other studies, such as Parnes(2025), Boon(2021), and Sjöström et al(2020), found that the integration of environmen-

tal issues in the school curricula cannot enhance students' knowledge of the current environmental issues and their related challenges because of a lack of effective materials and the presence of inaccurate and outdated environmental information in textbooks. This implies that the effects of integrating CGIs related to our environment depend on the way environmental issues are integrated.

2.7.2 Effects of Integration on Students' Problem-solving Skills of Environmental Problems

Literacy of CGIs also requires more than acquiring knowledge. It also involves the development of practical and cognitive skills necessary for identifying, analyzing, and solving environmental problems. In the Tbilisi Declaration (UNESCO, 1978), it was stated that one of the objectives of integrating environmental issues should be to develop students' skills used to solve environmental problems. Students should develop the ability to investigate environmental issues, collect and analyze information, evaluate alternatives, and participate in decision-making processes. Palmer (1998) also emphasizes that incorporating experiential learning activities in the school curricula can strengthen students' inquiry skills, critical thinking abilities, communication skills, and problem-solving capacities. Similarly, Tilbury(1995) argues that environmental education promotes higher-order thinking skills by encouraging learners to examine complex environmental issues from multiple perspectives. Integrating CGIs in the school curricula also develops collaboration and decision-making skills. Thus, if CGIs are integrated effectively, it makes students work in groups to investigate environmental issues, conduct community projects, and present solutions, thereby improving teamwork and leadership abilities. Rimba and Rastati (2023) also found that the inclusion of environmental problems in senior high school classes of Indonesia enhances students' ability to solve environmental problems, and there is a tendency for students to understand, identify, and formulate solutions to environmental problems.

Although integration of CGIs has its own effect on enhancing students' problem-solving skills of CGIs, other studies reveal that the inappropriate integration of the issues into the school curricula and classroom practices affects students' development of problem-solving skills of CGIs. For instance, Gebremedin(2025) found that the absence of the practical and problem-based approach of integrating environmental education hinders students' problem-solving skills on environmental issues. Balcha(2025) also found that secondary school students' sustainable environmental manage-

ment capabilities are at a lower level because of the inappropriate integration of environmental issues.

2.7.3 Effects of Integration on Students' Environmental Attitudes

Attitudes towards our environment refer to individuals' feelings, beliefs, values, and dispositions toward environmental protection and sustainability. Having positive environmental attitudes is essential for encouraging environmentally responsible behavior. To do this, several environmental educators, organizations, and researchers reported that integration of environmental issues have their own roles(Bogner, 1998; Palmer, 1998; UNESCO, 1978). For example, UNESCO (1978) reported that integration of environmental issues into the school curricula and classroom practices helps learners develop values and attitudes that foster concern for current environmental problems. This, in turn, helps learners to motivate active participation in environmental improvement efforts. Palmer (1998) also points out that integrating environmental issues into the school curricula and classroom practices, and having good learning experiences through the integration, increases students' appreciation of nature and environmental sensitivity and environmental responsibility. Because of the integration, learners can interact with environmental issues and can become more aware of the consequences of human actions on the environment and develop a commitment to conservation. Besides, Tilbury (1995) reported that integration of CGIs encourages learners to adopt ethical perspectives regarding environmental conservation and sustainable living.

2.7.4 Effects of Integration on Students' Participation in Solving Environmental Problems

One of the most important indicators of literacy of CGIs is the willingness and ability of individuals to participate in taking action on environmental problems. Thus, researchers and educators reported that environmental issues should be integrated into the school curricula and classroom practices so that students can have good information about their environment and empower themselves to become active participants in environmental problem-solving. In light of this, Hungerford and Volk (1990) stated that environmentally responsible behavior results from the integration of environmental issues into the school curricula and classroom practices. However, when environmental issues are integrated, they should include practical experiences that help students translate knowledge into meaningful action.

However, if CGIs are not integrated appropriately, they hinder students' participation in solving problems related to our environment. For example, Breunig et al (2014) found that although environmental studies programs (ESPs) integrated in secondary schools have positive effects on students' environmental attitude, the students struggle with ways to meaningfully address environmental problems. Bergman (2015) also added that with increasing years of learning experience about environmental issues, students demonstrated a slight increase in environmental appreciation and intention to act on CGIs related to environmental problems because of integration problems.

In general, from the above literature, it is possible to conclude that the integration of environmental issues into school curricula plays a crucial role in promoting students' literacy of CGIs among students. It is also stated that integration of current environmental issues significantly improves students' knowledge, skills, fosters positive attitudes and values toward environmental protection, and increases participation in solving environmental problems. However, if the integration is inappropriate, environmental challenges continue to grow worldwide.

2.8 Predictive Factors Affecting Integrating Contemporary Geographic Issues in the Classrooms

The integration of CGIs in the school curricula and classroom practices can also be affected by different factors. These factors can be categorized into curricula-related problems(Benjamin &Adu, 2019; Tilbury, 1995; UNESCO, 2017), teacher-related factors(UNESCO, 2020; Tiago, Rodrigues & Ramos, 2021; Van Petegem, 2010), resource-related challenges and so on(UNESCO, 2020).

2.8.1 Curricula-related problems

Curricula materials play a great role in integrating CGIs effectively. When curriculum materials integrate CGIs effectively, they enhance students' knowledge, skills, attitudes, and participation concerning each CGI. In light of this, Ball and Cohen (1996) reported that since curriculum materials consist of concrete information that teachers and students process during learning experiences and are part of the routine of classroom life, they should be developed effectively. Curriculum materials are also used as sources of information to integrate CGIs in the classroom, address the environmental challenges by raising awareness, promoting sustainable practices, and

developing skilled citizens for environmental conservation and sustainable development(El Batri et al., 2022; Laaloua, 2023). For example, teachers' instruction in the United States often reflects textbook sequences and topic depth (Schmidt et al., 2002). In the United States, about 64% of students read textbooks at least once a week, and researchers estimate that between 70% and 98% of all teachers in the United States use them during instruction weekly (Chingos & Whitehurst, 2012).

However, it does not mean that merely using textbooks as sources of information in integrating CGIs in the classroom is adequate, as they do not thoroughly address the current issues. For example, a study focused on seven commonly used earth science and environmental science textbooks found that about half of 18 major climate change concepts were absent from the majority of the texts (Choi et al., 2010). In an analysis of four sixth-grade science textbooks used in California, Román and Busch (2016) found that the books framed global climate change as uncertain in the scientific community. A study of over 50 earth science texts used in England and Wales also found that there are numerous misconceptions about GCC(King, 2010). Meanwhile, in Canada, Chambers and Rowell (2005) found that the provincial government of Alberta produced a set of materials that frames climate change as unsettled. In classrooms where instruction is shaped by curricular materials, these misleading portrayals could substantially affect students' learning about this issue.

Studies in Africa also indicated that although textbooks are used as the main sources of information for teachers and students, they do not include current issues that are talked about in the news, media, and by the community. In many parts of Africa, textbooks are neither available nor adequate. Even the available ones are not appropriate (UNESCO, 2016; Kira & Komba, 2015). For example, some geography textbooks have unclear concepts regarding the issues of climate change, and other textbooks refute scientific findings on climate change (Kira & Komba, 2015; UNESCO,2016). In Angola and Congo, some textbooks with climate change content are available, but they are inadequate (Alberto, 2015). In South Africa, climate change-related resources that are tailor-made to suit the curriculum are available and produced in series (like in learners' textbooks, learners' workbooks, and copyright-free materials). However, teachers lack the skills and expertise to use the materials. These limit the possibility of the education system addressing climate change effectively for learners. This implies that although textbooks consists different

types of CGIs or current environmental problems, there is a need to use other sources of information in classroom practices.

Although curriculum materials play a significant role in integrating CGIs in the classroom, the inappropriate development of these materials can affect the integration. These curricula-related problems include the presence of overloaded curricula on a variety of geographic topics, fragmentation of content items in the curricula, and a lack of clear objectives. In relation to the first problem**,** Tilbury (1995) and UNESCO (2017) reported that when the school curricula are often dense with vast content/topics, it gives little room for in-depth treatment of each CGI. Thus, teachers frequently focus on covering prescribed topics for examinations rather than exploring contemporary issues critically. In light of this, Benjamin and Adu (2019) found that since the school curricula were not developed with clear goals, content, and specific guidelines, they cannot develop teachers' capacity in the teaching of environmental education. As a result, teachers' levels of integration of environmental problems became ineffective.

The other challenge of curriculum materials is the fragmentation of content-related CGIs. It is believed that CGIs are inherently interdisciplinary. However, curricula tend to present topics of CGIs in isolation. For example, climate change may present only under the topic "atmosphere". This, in turn, prevents students from seeing the interconnectedness of social, economic, and environmental factors (Lambert & Morgan, 2010). Lack of clear learning objectives on topics of CGIs can also be a challenge for integrating CGIs in the classrooms**.** In many cases, objectives related to CGIs are vaguely stated in policy documents or textbooks, without specifying expected student outcomes in terms of knowledge, skills, and values (Chang, 2015).

2.8. 2 Teacher-Related Challenges

Teachers have their own roles to integrate CGIs into classroom practices. When a teacher integrates CGIs in the geography curriculum/classrooms, he/she should associate CGIs with students' everyday lives and day-to-day activities. Moreover, teachers integrate CGIs in a way that helps learners understand, analyze, and interpret the events that occur in their immediate and remote environments (Dube, 2012). Teachers should also relate CGIs to the objectives of the lesson. To do this, teachers should have good pedagogical content knowledge (PCK) of the subject matter (Shulman,1986). If a teacher possesses good PCK in his/her subject, his efficacy in teaching is very high, high, and he will become effective in his teaching (Audrey, 2009).

Ibourk(2024) also explored how literacy of technologies develops elementary school teachers' climate change knowledge and their self-efficacy for teaching climate change in Florida, US. The findings reveal that getting training about how to use interactive visualizations of climate models and simulations of the greenhouse effect enriched the teachers' climate change knowledge and their self-efficacy in integrating climate change and its concepts into the classroom.

However, if the teacher does not have adequate pedagogical content knowledge, he/she has faced many challenges in integrating CGIs in the classroom. This, in turn, makes the teacher use traditional teaching methods and inadequate resource use. In relation to this, Boeve-de Pauw and Van Petegem(2010) reported that teachers often lack sufficient subject knowledge, pedagogical strategies, and confidence to teach complex and controversial geographic topics. Consequently, they are unable to integrate the issues in a way to enhance students' knowledge, attitudes, skills, and participation in the environment. When teachers teach geographic topics through rote learning, textbook memorization, or lecture-based instruction rather than inquiry-based, participatory, or problem-solving approaches that CGIs demand, the integration becomes ineffective (Koc, 2018).

Teachers' teaching experience also has its own role in integrating CGIs in the classroom. For example, Villocido and Buyan(2025) found that the higher the teaching experience, the better for integrating environmental issues in the classroom. If teachers have higher experience, they accumulate good pedagogical knowledge, have a deeper understanding of curriculum content, and greater confidence in adapting instructional materials; they can integrate CGIs in the classroom effectively.

Studies also reveal that teacher professional training has its own effect in integrating CGIs in the classroom. For example, Delelu et al(2025) explored that teachers cannot integrate current environmental issues in the classroom, as their professional development training opportunities for geography teachers are inadequate, and teachers' teaching quality and effectiveness are at a lower level. Because of the limited professional training programs, teachers predominantly rely on traditional lecture-based methods rather than student-centred instructional approaches. For this reason, the study emphasizes that there is a need for enhancing teacher training programs related to the strategies used to create a more conducive learning environment. Other studies also indicated that some professional development programs across the USA, such as the Earth-

Labs Climate project (Ellins et al., 2014) and Project Learning Tree (Li et al., 2021), enhance teachers' levels of integrating climate change and deforestation in the classroom. Getting training about the EarthLabs Climate project made teachers engage with online modules focusing on climate change using technology, which in turn helped them gain confidence in integrating climate change and related topics such as weather, the biosphere, and the carbon cycle Ellins et al., 2014). In Turkish, it was also found that secondary school pre-service teachers' engagement in virtual learning through a web-based inquiry science environment significantly improved pre-service teachers' understanding of climate change and how to integrate climate change and related issues, like the impacts of greenhouse gases, and the effects of temperature fluctuations on ecosystems in their own classrooms (Li et al., 2021).

Teachers' use of inadequate information sources can also affect the integration, as effective CGI teaching requires different sources such as updated maps, satellite imagery, digital data, case studies, interactive tools and so on(UNESCO, 2020). Tiago, Rodrigues, and Ramos (2021) also add that the current model of environmental education seems to be deficient and does not satisfy the integration of environmental education, which is ineffective due to the lack of qualified teachers and their inability to articulate the set of knowledge, attitudes, and environmental sensitivity in the existing disciplines.

2.8. 3 Resource-Related Challenges

Efficient CGI teaching also demands current learning resources such as case studies, satellite images, and geographical data. However, most learning institutions, especially in resource-constrained countries, lack the resources to revise textbooks and subscriptions to teaching resources. The empirical study in resource-constrained countries points out that a lack of quality teacher training programs, oversized class size, a lack of teaching resources, and a lack of support within the learning institution affect the inclusion of CGIs. The study indicates a negative impact on the coverage and quality of teaching of CGIs(UNESCO, 2020).

In conclusion, although the integration of CGIs in geography classes is crucial for the development of students' environmental literacy, critical thinking, and civic responsibilities, challenges exist for such integration. Therefore, it is indicated that the process of integrating the CGIs should be reassessed and transformed for the success of such an endeavour that requires a set of goals sought through such education.

2.9 Theoretical Framework

Integration of CGIs related to our environment in the school curricula is inherently interdisciplinary**,** experiential**,** and context-based. Therefore, integration of different types of CGIs across subjects is not based on one theory alone. Instead, it emerges from several major learning theories that support holistic, contextual, and problem-based learning. Thus, it emerges from constructivist learning theory, social learning theory, place-based or situated learning theory, transformative learning theory, environmental education theory, and curriculum integration theory.

The first learning theory in which the integration of CGIs emerges is from Vygotsky's (1978) socio-cultural constructivist theory of learning. This theory describes that learners construct their own understanding and knowledge through a socially mediated process in which knowledge is constructed through interaction with others, cultural tools, and the surrounding environment. Thus, by bringing the real situations and experiences of our environment from the outside environment into the classrooms and curriculum materials, learners can learn about their environment. Using the curricula materials and classroom practices as scaffolding strategies, the learners reflect, discuss, and share these experiences with their teachers and peers. Through this process, learners develop social interaction, cooperation, scaffold each other, share experience and construct new knowledge. This, in turn, helps learners solve problems based on their own experiences and the use of cultural contexts (Vygotsky, 1978). Pritchard and Woollard (2010) also pointed out that learning becomes effective when learners learn by integrating their background experiences into the classroom, doing different tasks, constructing meaning, and solving problems related to particular issues. In the same vein, CGIs related to our environment, such as environmental pollution, population growth, climate change, land degradation, deforestation, etc., require integration into the school curricula and classroom practices, and environmental problems can be solved through inquiry, critical thinking, learner participation, and real-life applications (Palmer, 1998).

As the socio-constructivist theory of learning gives much attention to the role of experience, social interaction, and problem-solving skills through interaction (Vygotsky, 1978), integrating CGIs in the school curricula involves active engagement, problem-solving, and critical thinking of students on CGIs in the curriculum materials, and understanding the complex, real-world issues of CGIs. In addition, constructivism emphasizes that learners build knowledge through in-

teraction with content and context rather than passively receiving information. Understanding of CGIs such as population growth, land degradation, soil erosion, deforestation, climate change, environmental pollution, and unplanned urbanization requires students to analyze, interpret, and evaluate data from multiple sources.

Integration of CGIs also emerged from Lave's and Wenger's theory of situated learning(Lave & Wenger, 1991). This learning theory emphasizes that learning takes place through participating in real-life and community practices**,** not primarily through abstract classroom instruction. Lave and Wenger (1991) also explain that in situated learning, the process and development of learning takes place when individuals have the opportunity to participate in a community of practice. In this theory of learning, the learner moves from the periphery of the community to the center as he/she gains expertise, engages and participates actively in the sociocultural practices of the community. Stein (1998) also adds that situated learning involves social interaction and collaborative learning in an authentic context. In this theory of learning, the learners are placed in event-based curricula and in an authentic workplace to solve real-life problems, and this learning theory introduce students to careers, making a connection between classroom lessons to the real world situations. In the same vein, integrating CGIs related to our environment into the school curricula and classroom practices is inherently contextual**,** community-based**,** and action-oriented, it requires students to learn through real issues (pollution, biodiversity loss, land degradation), with real community members (environmental groups, local authorities), and using real problem-solving tasks(waste management, afforestation, gardening)(Palmer, 1998; Reid & Scott, 2006; Wenger, 1998).

The infusion of CGIs in the classroom setting also came from Bandura's (1977) Social Learning Theory. Social learning theory by Bandura (1977) mainly focuses on the aspects of observation, imitation, or modeling in terms of shaping behaviors or taking actions on a certain issue. Social learning theory by Bandura (1977) also states that on a certain issue, students develop their knowledge, attitudes, skills, or behaviors by viewing models, which might be a person, several people, or the community itself. Likewise, by incorporating CGIs in the curricula as well as in the classroom setting, students tend to practice pro-environmental behaviors by viewing their peers who practice earth-friendly behavior, while the community itself serves as the guardians or custodians of the environment by protecting it. This occurs during outdoor experiences by the students in carrying out community participation (Hungerford & Volk, 1990). Incorporating

CGIs in classroom discussions also presents a chance for mutual learning in terms of group activities in class projects, thereby developing common values concerning environmental stewardship.

Evidence also showed that the inclusion of CGIs in classrooms emerges from Mezirow's (1991) transformative learning theory. This theory assumes that learning is a critical reflection and a perspective transformation. Mezirow(1991)states that it is through reflection and transformation learners change their perspectives and beliefs on a particular issue. It also emphasizes that learning is not just knowledge or skill acquisition, but it involves a change of one's views on his/her relationship with the world. This leads to new ways of thinking, feeling, and acting about what the learners learn. In the same vein, learning about CGI seeks not only knowledge development on climate change, biodiversity loss, environmental pollution, deforestation, and population growth, among others, but also enhancement of critical reflection, value shifts, and long-term behavioral change on these issues. O'Sullivan (1999) also asserts that pro-environmental behavioral changes can be achieved through the disruption of students' beliefs about human relations with nature and resource usage. Similarly, it is argued that through the inclusion of CGIs that are common at the global and local levels in the classroom practices, instructors in schools are able to move students away from unsustainable behaviors and towards new ideas that will generate approaches towards sustainable development.

Finally, integration of CGIs in the school curriculum and classroom practices derived from Palmer's (1998) Environmental Education Theory. This theory emphasizes that environmental learning is a holistic, lifelong and integrated process of learning about, in and for the environment by integrating current environmental problems in the education system. While education *about* the environment refers to learners' understanding or knowledge about the environment, education *in* the environment emphasizes students' environmental attitude development through direct experience and outdoor learning about environmental issues, which, in turn, helps learners' emotional connections and sensitivity toward the environment. On the other hand, education *for* the environment refers to the development of learners' skills to take responsible action to improve and protect the environment. In the same vein, it is believed that when CGIs are integrated in the school curricula and classroom practices, the students can develop their knowledge, attitude, problem-solving skills and participation towards the CGIs occurred at the global and local levels (Değirmenci & Ilter, 2017; Nafisah et al, 2022).

Integration of CGIs also emerged from the curriculum integration theory, which is one of the most widely applied theories in integrating environmental issues. The theory argues that real-world problems related to our environment are complex and cannot be adequately understood through isolated subject disciplines. Therefore, environmental issues should be taught across different subjects rather than as a separate discipline. This theory also argues that educating environmental issues should be connected to real-life experiences and social problems rather than merely transmitting subject matter. Thus, environmental issues should be integrated into different school curricula in the way that engage students with authentic issues that require knowledge, skills,and attitudes from multiple disciplines(Beane, 1997).

Beane (1997) also reported that curriculum integration organizes learning around significant environmental problems and issues that cut across disciplinary boundaries. Since environmental problems such as climate change, pollution, deforestation, or biodiversity loss are multidisciplinary in nature, and they require knowledge from different disciplines such as science, geography, economics, civics, and social studies, they should be integrated into different subjects. Thus, teachers who have different knowledge from different disciplines can integrate the issues into the classroom practices. Taba (1962) also emphasized that curriculum should facilitate the integration of knowledge and experiences rather than compartmentalizing learning into separate subjects. Thus, the ideas of Beane(1997) and Taba(1962) contributed to the development of various approaches such as infusion approach, cross-curricular approach, innterdisciplinary approach, or multidisciplinary approach which are central to the integration of different environmental issues in the school curricula.

In general, the inclusion of CGIs linked to our environment within the school curricula and in the classroom is supported by a variety of learning theories. These include constructivist, experiential learning, situated learning, social learning, transformative learning and environmental educationist views. When all these learning theories are used integratively in presenting CGIs in geography curricula and classroom practices, they can provide a well-structured education related to the knowledge of CGIs as well as the values associated with sustainable lifestyles.

2.10. Conceptual Framework

Recently, rapid population growth and increasing human interaction with the environment have intensified local and global environmental challenges, which are known as contemporary geographic issues. To solve these problems, integrating CGIs into geography curricula and classroom practice is considered a key solution, as it fosters the young generation's literacy of CGIs-knowledge, attitudes, skills, and participation on environmental problems (Garcesa & Limjuco, 2014; Disinger & Roth, 1992, cited in Tuncer et al., 2009). This, in turn, makes the new generations become environmentally responsible citizens.

The central concern, however, lies in to what extent and how CGIs related to environmental challenges are incorporated into school curricula and classroom practices. Different educators and researchers argue that effective integration of CGIs largely depends on curriculum materials and teacher-related factors(Andersson & Öhman, 2017; Boeve-de Pauw & Van Petegem, 2010; Değirmenci & Ilter, 2017; Koc, 2018). These material and teacher-related factors, in one or another way, are interconnected and play their own roles in the effective integration of CGIs either individually or collectively(Kimaryo, 2011; Palmer, 1998).

In light of curriculum materials, it is argued that well-designed curriculum materials can be characterized by the inclusion of diverse CGIs that are prevalent at the local and global levels (Değirmenci & Ilter, 2017). Palmer (1998) and UNESCO (2017) also emphasize that when curriculum materials address CGIs that are prevalent at the local and global levels, they enable learners to link classroom knowledge with their own real-life experiences. They also play a critical role in equipping learners with the knowledge, skills, values, and action competence required to respond to contemporary environmental challenges**(**Kimaryo, 2011; Palmer, 1998**;** UNESCO, 2017).

To make the integration more effective, curriculum materials should also incorporate different content items of a particular CGI. These contents items should include the nature of the issue, its causes, consequences, and mitigation strategies. In addition, the materials should present this content clearly and in a way to build students' knowledge, attitude, skills and participation (Morgan, 2010). This, in turn, enables learners to develop their literacy of CGIs which are used to respond to the pressing local and global challenges (Ball & Cohen, 1996; Roczen, 2014).

The integration of CGIs into school curricula can also become more effective when curriculum materials include instructional activities that encourage students to connect real-life experiences

with current environmental issues at both local and global levels. Emphasizing this point, Kostya (2007) noted that curriculum materials should incorporate activities that strengthen students' analytical, critical thinking, and problem-solving skills in relation to environmental challenges. Furthermore, the activities embedded in the curricula should foster learners' environmental awareness, knowledge, active participation, and commitment to generating positive impacts on the environment(Kibga, Sentongo & Gakuba,2021).

The above-reviewed literature consistently implies that when CGIs are integrated into curriculum materials, the materials should present CGIs in a way to enhance knowledge, skills, values, and action competence of CGIs by connecting classroom knowledge with real-life experiences. The literature also implies that the curriculum materials should incorporate adequate content items, clearly defined instructional objectives, and meaningful learning activities. These elements should be carefully designed and presented in the material to promote students' literacy of CGIs that enable them to understand and respond effectively to local and global environmental challenges.

The integration of CGIs in the classroom also depends on other teacher-related factors. Among these is the literacy of CGIs among the teachers. These literacy dimensions encompass the knowledge, skills, attitudes, and participation of the teacher in the CGI. For example, Coyle (2005), in his study, noted that teacher literacy is one of the major determinants of effective CGI integration in the classroom. If the teacher has a better understanding of the CGI, they can integrate the global and local CGI in the classroom better so that they can easily improve the students' knowledge, attitudes, skills, and participation. For example, the teacher's greater knowledge and awareness of issues help improve the teacher's sensitivity to the issues of the environment (Lee, 2008). This helps the teacher show greater determination to integrate the CGI in the classroom practices and activities (Budzanowska-Drzewiecka & Tutko, 2021). For example, if the teacher has greater knowledge of the CGI, they can easily decide the content to be taken by the student to improve their skills, attitudes, and participation in dealing with issues of the environment. This implies that teachers' literacy in CGIs is a critical factor in the effective integration of CGIs into classroom teaching. Teachers with higher levels of CGI literacy are more likely to select relevant content, design meaningful learning activities, and foster students' knowledge, skills, attitudes, and participation related to global and environmental issues. There-

fore, enhancing teachers' CGI literacy through pre-service and in-service training is essential for improving the quality and effectiveness of CGI integration in schools.

Teachers' use of hands-on, inquiry-based teaching methods is also considered a key factor in the integration of CGIs into classroom practices. Through hands-on teaching approaches, students can observe, experiment, and demonstrate their knowledge of CGIs in diverse ways(Kostova & Atasoy, 2008). Using relevant methods also provides opportunities for learners to investigate new ideas, show direction, and provide encouragement on how to address environmental challenges. Furthermore, the use of appropriate teaching strategies is essential for achieving the intended learning outcomes of CGIs (Sarkar, 2011; Waliczek & Zajicek, 1999). In line with this, Gambino et al(2009) highlighted that engaging students in field observations enables them to acquire new knowledge, shift attitudes, develop advocacy strategies, and take responsibility in addressing CGIs. If teachers use problem-based teaching methods, learners can develop their knowledge of CGIs(knowledge of facts, concepts, relations, etc., of our environment), skills(skills of readiness and expertise for activities in studying, protecting, and sustaining our environment, and a system of skills to participate in nature conservation activities). It also enhances attitudes(attitudes of controlling one's own behavior in relation to the environment, taking responsibility for environmental problems, and keeping scientifically sound rules for behavior)(Kostova & Atasoy, 2008; Morrison, 2015). From this, one can infer that effective integration of CGIs into classroom practice depends largely on teachers' use of learner-centered and inquiry-based teaching methods. Approaches such as hands-on activities, field observations, and problem-based learning enable students to actively engage with CGIs, which in turn helps to enhance their knowledge, practical skills, attitudes, and participation in addressing environmental and global challenges.

It has also been broadly stated that a successful integration of CGIs in geography classroom learning is largely impacted by teacher qualification, training, and teaching experience. The teachers with high levels of professional training and academic qualifications can offer a strong foundation in their subject knowledge, teaching skills, and professional dispositions (Petkou et al, 2021). This, in turn, makes them integrate CGIs related to our environment easily in the classrooms. According to Mulenga (2015), qualified and trained teachers are more competent in incorporating environmental issues in classroom learning compared to less-qualified teachers. The reason is that qualified teachers are more confident in not just dealing with factual aspects

related to global environmental issues, but also in their conceptual and analytical aspects, which require critical thinking and interpretation skills, compared to teachers with less academic qualifications, who may not be able to go beyond the surface level, thus hampering the process of CGI integration.

Teacher qualifications and experience are also the most critical determinants of overall education quality. A highly qualified teaching workforce exposes learners to rigorous and relevant curricula. If teachers have higher or more relevant qualifications, their content knowledge, pedagogical repertoire, confidence, and ability to connect classroom lessons to local and global environmental problems are better; conversely, teachers with less qualification are frequently associate textbook-bound lessons (Zhang et al, 2025). Without adequately qualified and experienced teachers, the curriculum is being delivered in a way that is out-dated, overly simplistic, or disconnected from real-world challenges. Gugssa (2023) also adds that teachers play a great role in integrating CGIs related to our environment into classroom practices. They shape learning environments, facilitate school-based initiatives, influence students' environmental attitudes and behaviors, and act as mediators between content items of CGIs and learners.

This reviewed literature also implies that teachers' qualifications, professional training, and teaching experience are crucial determinants of the successful integration of CGIs into classroom learning. Teachers with higher academic qualifications, specialized training, and extensive teaching experience possess stronger content knowledge, pedagogical skills, and confidence to address complex environmental and global issues. As a result, they are better able to connect curriculum content with real-world challenges, promote critical thinking, and foster students' knowledge, skills, attitudes, and participation related to CGIs.

When the above-mentioned factors that hinder the integration of CGIs are avoided/at least minimized, teachers can integrate CGIs in the classroom effectively. When CGIs are integrated effectively into school curricula and classroom practices, they significantly enhance students' literacy of CGIs. In light of this, Selby and Kagawa (2012) stated that embedding CGIs in education can promote comprehensive learning outcomes across four key domains, such as knowledge, skills, attitudes, and participation in environmental issues. The collective development of these learning outcomes, in turn, enables students to understand, analyze, and respond to critical environmental challenges. Ozsoy et al (2012) also contended that cultivating a truly

environmentally literate society helps to protect the environment sustainably. Ngobo (2011) demonstrated that exposing students to CGIs within formal education correlates with environmentally responsible behavior. Students who encounter real-world environmental topics in geography lessons are more inclined to adopt sustainable practices in their daily lives. It shapes personal values and social attitudes. Suralin(2023) also found that there were significant improvements in environmental knowledge and awareness among students after the intervention.

Based on the above conceptual framework, it can be concluded that both material and teacher variables influence the integration of CGIs to a great extent. While the material variables include the integration of various types of CGIs that symbolize both the local as well as the global context, the learning outcomes of CGIs, the content items of a specific CGI, the learning tasks, the sources of varied pieces of information, and the teaching procedures, the teacher variables include the teachers' familiarity with CGIs, qualification, professional training, the level of teaching experience, and the application of proper teaching procedures and sources of information. Thus, it is asserted that the proper integration of CGIs into the school curriculum and teaching learning procedures would further boost the students' familiarity with CGIs concerning our environment. This, in turn, would make the students more sensitive and adept at decision-making procedures concerning environmental problems, and also make them involved in those everyday actions that favor the environment. This is represented in the following figure.

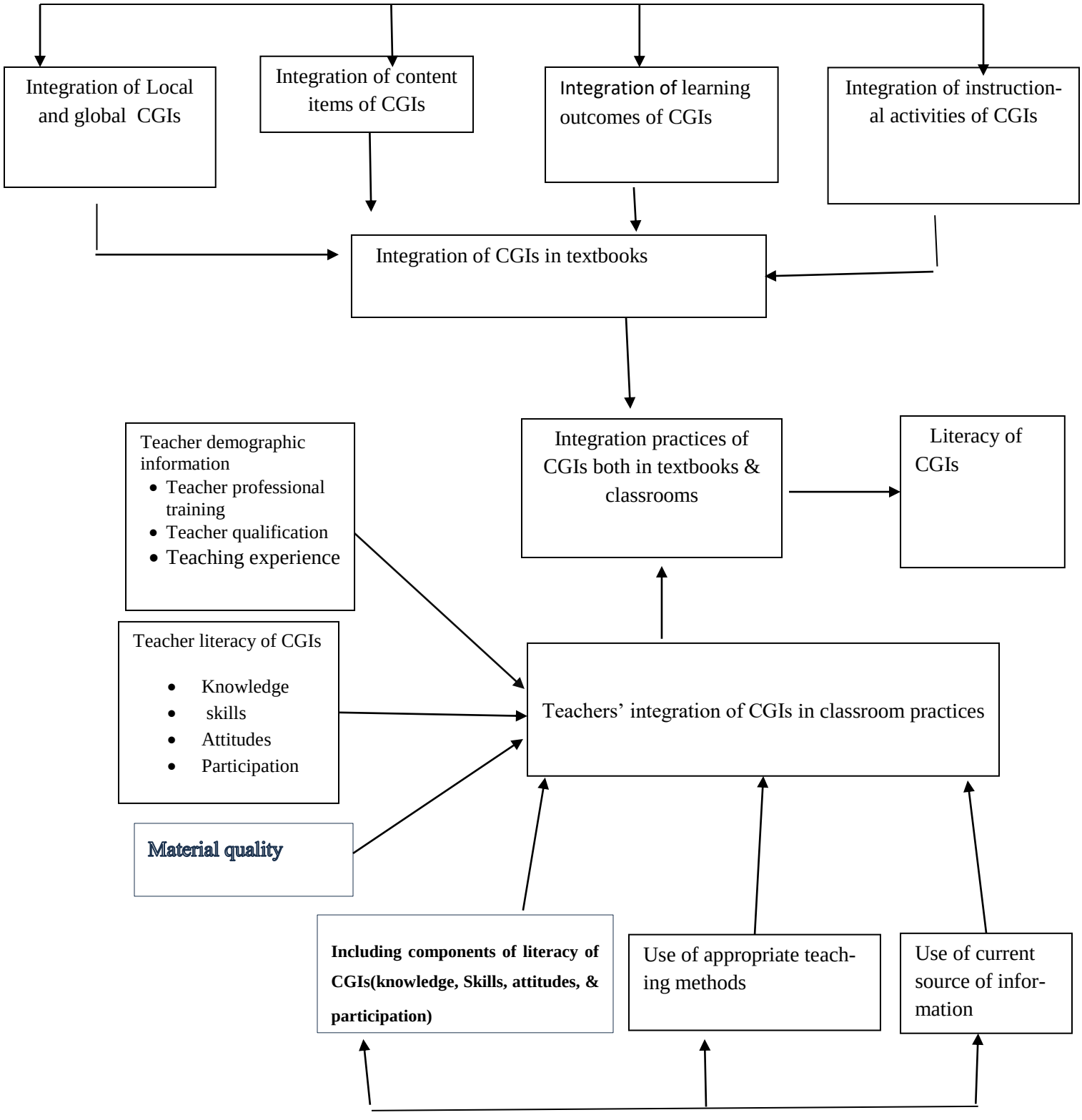

Figure 1. Conceptual Framework

CHAPTER: THE RESEARCH METHODOLOGY

Introduction

This section gives detailed information about the research methodology applied in this study. The section starts with an explanation of the underlying paradigm of the research, which highlights the fundamental basis of this study (integration of CGIs in the Geography textbooks and classrooms). Following that, the approach of the research is clearly defined, and why it was used in this study. Then, the research design (concurrent embedded) is described, and why this design was selected. Additionally, the setting and participants of the study are introduced, detailing the study setting itself and the justification for its selection. The section proceeds with a description of the data collection methods, such as surveys, in-depth interviews, classroom observation, and document analysis. After this, data analysis techniques have been outlined to indicate how the quantitative and qualitative data were analyzed and interpreted for useful findings. Next, the data analysis techniques are described. These include the process of analyzing and interpreting the quantitative and qualitative data used. In addition, the validity, reliability, and trustworthiness of the study are described. Lastly, the ethics of the study, along with lessons learned from the pilot study, are included in order to highlight the study's accuracy in meeting the ethics of confidentiality, respecting individuals, and obtaining informed consent.

3.1 The Research Setting

The research setting for this study is East Gojjam and Awi Administrative Zones. East Gojjam Administrative Zone is one of the Zones of Amhara National Regional State, and it has 18 rural districts and 13 town administrations. Under these districts and twon adminstrations, there are 72 secondary schools. East Gojjam is bordered on the south by the Oromia Region, on the west by West Gojjam, on the north by So uth Gondar, and on the east by South Wollo. The bend of the Abay River defines the Zone's northern, eastern, and southern boundaries. Thus, most parts of the zone are surrounded by the Abay Gorge. The area is located in the northwestern highland of Ethiopia at geographical locations of 10° 1’46’’ and 10° 35’ 12’’ N latitude and 37° 55’ 52’’ E longitude and at distances of 305 and 251 km from Addis Ababa and Bahir Dar, respectively. Its geographical location is found in the following figure (Figure 2).

The second study area was Awi Administrative Zone, one of the 13 zones within the Amhara Region State. Awi Zone is surrounded on the western side by the Benishangul-Gumuz Region, on the northern side by the Central Gondar Zone, and on the eastern side by West Gojjam. The Administrative Zone has 11 rural administrative districts and 5 town administrations. Under these districts and twon adminstrations, there are about --- secondary schools. The Zone is characterized by flat areas and fertile soil with an elevation of 800 to 3,100 meters above sea level and an average elevation of 2,300 meters. Additionally, it is noted that in the higher elevation regions of Awi, natural resource management is well-suited and geared towards the preservation of fertile soil and the avoidance of soil erosion. It is also considered an area that is highly productive in the state of Amhara.

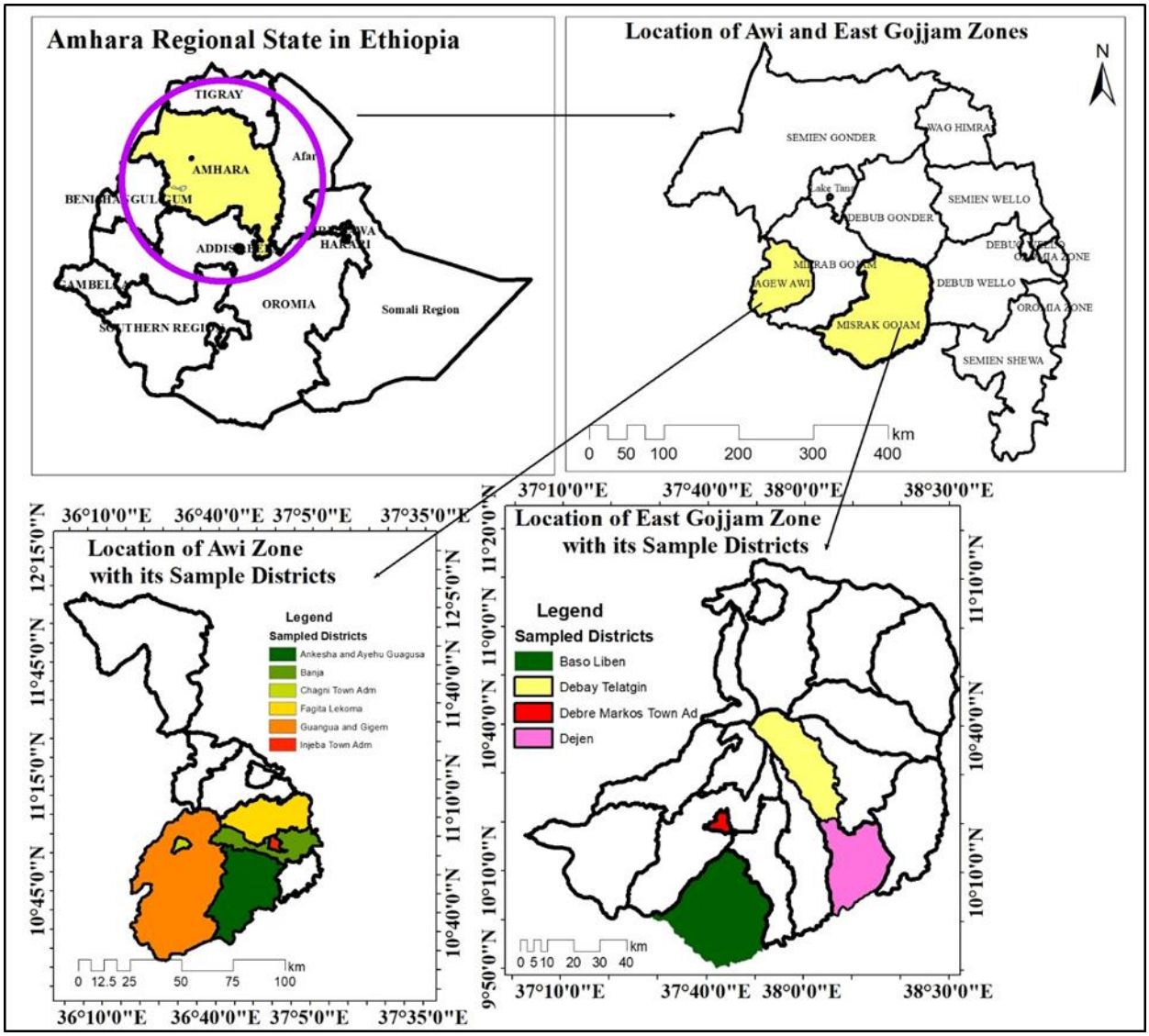

Fig. 2. Location of the Study Areas

Source: GIS(2022/2023)

3. 2 Demographics and Socio-Economic Status of the Study Areas

The data from the Zone Rural Development Office (RDO) shows that the East Gojjam Zone has a total area of 1,380,903 hectares. According to BoFED (2014), its population is estimated to be around 2.45 million in 2014. This accounted for 14.5% of the total population in the Amhara region. The zonal average population density is 89 inhabitants per square km. However, there is an uneven distribution of population among the different woredas. Generally, the highlands are densely populated compared to the lowlands. The overwhelming majority of the population in the zone (86.5%) is living in rural areas where agriculture is the main source of livelihood. This population, economically, depends on plough-based, labour-intensive agriculture and livestock rising. On the other hand, the rest 13.5% of the population are found in towns with trading and other activities. This implies that the economy of the Zone is mainly based on plough-based agriculture.

According to ANRS-BoFED (2006), Awi Zone is also one of the 13th Zones of the Amhara Nation Regional State of Ethiopia. Its population is about 1,078,235, of which 86.5 % reside in rural areas. The land use of Awi-Zone is 17.3% swampy areas, 6.9% cultivated land, 4.4% grazing land, 35% natural forest, and 36.4% others (ANRS-BoFED, 2006). The altitude of the zone ranges from as low as 550 to 3100 m, while the minimum and maximum annual temperature ranges between 5 $^{\circ}$C and 25 $^{\circ C}$. The area is characterized by a mixed farming system. Potato, wheat, barley, maize, field pea, and faba bean are the dominant crops grown in the area. These crops cover around 90% of the cultivated area. Livestock production is an integral part of the production system of the area. Production of cattle, sheep, horses, and mules, and poultry is a common practice, with an average of 0.5 to 1.5 ha per household land holding size. Sheep and cattle are the dominant livestock in the study zone.

3. 3 Education Status of the Study Areas

The 1994 Education and Training Policy have shaped the overall education system, policy and strategy of Ethiopia in general and the Amhara regional state in particular(MoE, 1994). However, for the last three decades, different policies and strategies have been developed and implemented across the country, and the Amhara region has adopted the educational policy and im-

plemented it in each grade level across each administrative zone and district (MoE, 1994, 2010, 2015, 2021). In the Amhara regional state, education is given high value. The community believes that education contributes significantly to social, economic, cultural, and environmental development. In light of this, in areas where environmental problems are more prevalent, education raises awareness about environmental challenges and makes people develop responsible behaviours such as conservation, recycling, and sustainable resource use (UNESCO, 2020). It also helps to make informed decisions that balance environmental protection with economic and social needs.

As the East Gojjam and Awi Administrative zones are part of the Amhara regional state, the communities in these areas widely believe that education plays a crucial role in addressing their social, economic, political, and environmental challenges. For this reason, the people enroll their children in each school level and encourage their children to develop the necessary knowledge, attitudes, and problem-solving skills. To do this, the schools implement the education policy developed at different times. Among these policies and strategies, the successive and progressive education sector development programs (ESDP I, II, III, IV, V, and VI) are the most important ones. One of the goals of these Education Sector Development Programs is to educate the young generations about the current environmental challenges by integrating them into the school curricula and classroom practices (MoE, 2010, 2015, 2021). The government's Climate-Resilient Green Economy (CRGE) plan, which aims to protect the nation from the negative consequences of climate change and related feactors will also support the inclusion of environmental problems into the school curricula to enhance people's literacy about their environment (Taye & Dereb, 2015).

Since the East Gojjam and Awi Administrative zones are affected by different environmental problems, such as deforestation, land degradation, unpredictable rainfall, etc., they are forced to educate the new generations about their environment in the classroom. In East Gojjam Zone, for example, school projects have been established to address the problems related environmental problems. For example, the Debre Markos School Project directed by UNICEF in collaboration with local communities, local schools and the Amhara Regional government has attempted to protect environmental-related challenges like land degradation, soil erosion, deforestation and so on. Besides, this project encourages teachers and students to integrate climate change and related challenges in formal education and make students learn how to minimize the impacts of cli-

mate change at the local level, and raise awareness on environmental problems and pressing issues such as climate change impacts and how they will be experienced locally(UNICEF, 2011).

3.4 Research Paradigm

The guiding paradigm of this study is pragmatism, a worldview that provides an underlying philosophical framework that uses multiple methods in generating knowledge. There are some major reasons the investigator employed this paradigm as a guideline in this study. First, as indicated above, the main objective of this study was to investigate the integration of CGIs in Geography textbooks and classroom practices, and its effect on students' literacy of CGIs. To address this objective, the study needs quantitative data collected through a survey questionnaire and document analysis. In order to support this larger quantitative data, the study also needed additional qualitative data collected through in-depth interviews, document analysis, and classroom observations. As a result, the pragmatism world view gave the general orientation/guideline for the investigator how such complex problems are investigated using objective quantitative data and qualitative depth data. In light of this, Creswell & Clark (2014) and Morgan (2014) pointed out that pragmatism world view is used when complex problems require both quantitative precision and qualitative depth. Second, the investigator utilized this paradigm as each of the research question of the study can be addressed by selecting appropriate quantitative and qualitative methods and procedures.

Ontologically, this study is grounded on the assumption that there are objective and dynamic realities**.** With this in mind, the investigator used this ontological assumption to explore the integration of CGIs in geography curriculum materials and classrooms using a variety of quantitative and qualitative data collected through multiple data collection methods. In light of this, Morgan (2007) states that ontologically, pragmatism acknowledges that reality is not only singule, but it is also experienced differently depending on the context and purpose of inquiry. What matters most is not whether a phenomenon is objectively "real" or subjectively "constructed," but how effectively it can be understood and acted upon in practice.

Epistemologically, this study emerged on the assumption that knowledge can be obtained both through construction based on experience and objective data. Thus, truth is not only absolute, but is also validated through practical outcomes. Thus, using this assumption the investigator collect objective data and construct meaning based on the empirical evidence and logical rea-

soning. Therefore, the investigator of the current study believed that the integration of CGs in Geography curriculum materials and classroom practices can be obtained through the objective and subjective data.

Methodologically, this study is grounded in the assumption of methodological flexibility, or methodological pluralism. Researchers employ both qualitative and quantitative approaches, either sequentially or simultaneously, depending on the nature of the research questions. In this regard, Tashakkori and Teddlie (2010) emphasize that, guided by the research questions, investigators can adopt a variety of data collection strategies and may analyze data concurrently or in sequence. Consistent with this pragmatist paradigm, the investigator adopted and utilized multiple methods, including survey questionnaires, document analysis, in-depth interviews, and classroom observations, to generate comprehensive insights into the integration of CGIs in Geography curriculum materials and classroom practices.

Axiologically, the investigator recognizes that values/ethical issues should be an integral part of the entire research process. Accordingly, the investigator conducted the study keeping the research integrity to address the real-world problems and enhance practice in the integration of CGIs into curriculum materials and classroom instruction. Regarding this, Morgan (2007) stated that values and ethical considerations are an integral part of the entire research process.

3.5 Research Approach

This research adopted a mixed-methods research approach. There are some reasons this study used this approach. First, the study by its nature needed detailed data from different sources using different data collection methods. Thus, to get more valid and reliable quantitative and qualitative data from different sources, the investigator felt that a mixed method approach is more valid and reliable in the data collection process. Second, the investigator employed the mixed method approach to avoid/at least minimize the investigator's bias while she was collecting data using a single quantitative method. Third, the mixed method approach was used to fill the gap of the single quantitative data collected through a questionnaire or document analysis. The data collected through a single approach cannot provide detailed data about the integration of CGIs in Geography textbooks, the effect of CGIs on students' perceived literacy of CGIs, and the challenges that affect teachers' integration of CGIs in classroom practices. Regarding this, Cre-

swell and Creswell (2014) and Onwuegbuzie and Turner (2007) stated that when the data obtained from quantitative and qualitative methods are triangulated, converged, integrated, or connected, the bias caused by a single data collection method can be minimized. Thus, a mixed approach has become the most prevalent approach of research that enjoys the strong side of both quantitative and qualitative approaches in a particular study.

Consequently, the data gathered from the quantitative and qualitative data sources were utilized to address the objectives of the study. While the quantitative data obtained from document analysis was utilized to address the research question "the extent to which CGIs were included in the Grade 9 and 10 Geography textbooks", the quantitative data gathered from the survey questionnaire was used to address the extent to which the Geography teachers included CGIs in the classroom practice, the impacts of integrating CGIs in the classroom practices on students' literacy of the CGIs, as well as the predictive determinants of incorporating the CGIs in the classrooms. Furthermore, the qualitative data gathered from the document analysis, in-depth interview, and observation were used to support the larger quantitative data.

Concerning mixing the quantitative and qualitative data, Creswell and Creswell (2014) stated that when quantitative and qualitative data are mixed, it is very important to consider several aspects. These important aspects are timing, weighting, and mixing. Thus, in this study, these aspects of research were taken into account. In light of timing (the phases of data collection), both quantitative and qualitative data were collected simultaneously. In the case of the weight of the collected data, priority was given to quantitative data because the research problem of this study mainly emphasized investigating the extent to which CGIs are integrated into geography curricula and classrooms, and most of the research questions are answered by quantitative data. Moreover, emphasis was given to quantitative data as the investigator intentionally used the qualitative data in a supportive role to the larger quantitative survey data.

In terms of the way data are mixed (whether the data were mixed at data collection, data analysis, interpretation or discussion stage) and how the data were mixed, Creswell and Creswell (2014) states quantitative and qualitative data are merged on one end of the continuum, kept separate on the other end of the continuum, or combined in some way between these two extremes. Similarly, in this study, qualitative data were used to provide supportive information for the larger quantitative data. Thus, both the quantitative and qualitative data were mixed during

data analysis process. Therefore, the investigator embedded the qualitative data within larger quantitative data.

3.6 Research Design

From the different types of mixed research designs, such as cconvergent parallel design (triangulation design), explanatory sequential design, and exploratory sequential design, this study employed an embedded research design. This design involves when one type of data (qualitative or quantitative) is embedded within a larger primary design. Thus, in this study, the qualitative data which supports the larger quantitative data is embedded under the larger quantitative data. In light of this, Creswell (2014) states when the quantitative or qualitative data is embedded within a larger data set, an embedded (nested) mixed research design is used. The investigator used this design for two main reasons. First, the investigator collected and analyzed the data both quantitatively and qualitatively. However, the qualitative data plays a supportive role within a larger quantitative data set. This was done as the investigator believes that a single method, either quantitative or qualitative, cannot fully address the research problem, and supplementary data are needed to enrich interpretation. Second, this design was used as the investigator wanted to strengthen the validity and credibility of the findings of the study. This is because the embedded data helps to explain the unexpected quantitative results and provide contextual depth and meaning. Regarding this, Tashakkori & Teddlie(2010) state that embedding helps to ensure overall trustworthiness of the study by offering multiple perspectives on the same phenomenon.

3. 7 Samples and Sampling Techniques

The samples of this study were currently published Grade 9 and 10 Geography textbooks (2021/2022), Grade 9 and 10 students, and Grade 9 and 10 Geography teachers. These curriculum materials were selected over others for several reasons. First, the Geography curriculum is more suitable for integrating CGIs and addressing environmental issues than other subject curricula. It is used to intertwine experiences related to an individual's life; there is a mutual causal link between Geography classes and environmental problems; and Geography helps students gain knowledge and skills from real-life examples. Moreover, the content of Geography is directly related to human-nature interaction and CGIs related to environmental problems. In light of this, Palmer (1998) points out that most countries integrate environmental issues into all school curricula/subject area contents such as Geography, Biology, History, Social Studies,

Maths, Chemistry, Physics, etc. However, from the different content area subjects, Geography is considered a more appropriate subject to incorporate CGIs as it mainly focuses on environmental issues that are related to each student and teacher's experiences, and the subject of Geography helps students to gain knowledge and skills from real-life examples. Deveci (2005) also adds that current events are usually integrated in Geography curricula materials as the subject Geography, as having geographical competencies and skills are used to explore geographical events on a range of scales, from local to international.

Second, the investigator selected the Grade 9 and Grade 10 Geography textbooks over the Grades 11 and 12 Geography textbooks, as the Grades 9 and 10 textbooks were developed and published in the year 2021/2022 based on the new Ethiopian Education Roadmap, and they were used by teachers and students. This means that newly developed Grades 9 and 10 Geography textbooks were started to be used by teachers and students when the investigator started to conduct this study. However, the Grade 11 and Grade 12 textbooks were not developed, published, and utilized based on the new Ethiopian Education Road Map when the investigator started to conduct this study(2021/2022). Third, the investigator believed that these curriculum materials incorporate CGIs, as ESDP VI(MoE, 2021) and the new Ethiopian Education Road Map recommended that when a new curriculum is developed, it should incorporate current environmental issues. Fourth, CGIs are launched in the education, health, agriculture, and environmental protection policies, so that the investigator believed that these issues can easily be integrated with Geography curricula. Finally, these issues are part of the sustainable development goals that most of the countries in the world are working harder to achieve these goals by 2030 by integrating with the education system and raising awareness about the issues for the people.

The second samples for this study were drawn from secondary school students found in the East Gojjam and Awi Administrative Zones. Students in these schools were selected as samples of the study to gather data about the effects of integrating CGIs on students' perceived literacy of CGIs related to our environment. In light of this, Ozsoy et al (2012) point out that an environmentally literate society is mainly created through effective environmental education. Therefore, these samples of the study were used to collect data about the effect of integrating CGIs on students' environmental literacy(students' knowledge, attitude, skills, and participation in environmental problems).

The investigator selected students from these zones for four main reasons. First, the secondary schools found in both zones have used the same curriculum materials (Geography textbooks). This similarity ensured uniformity in the instructional content, and this allowed the investigator to gather meaningful data across schools without the influence of different curricula. Second, the two zones share similar topography and agro-ecological conditions, and these shared environmental characteristics contribute to the occurrence of diverse environmental problems. This, in turn, helps the investigator to investigate whether or not secondary school Geography teachers in each zone relate the CGIs that occur in their local areas to Geography lessons. Moreover, such similarities provide a common environmental and socio-economic background, which strengthens the internal validity of the study by reducing variations that might arise from differences in physical or ecological settings. Selecting these zones also provided the investigator with an appropriate and contextually rich setting in which to examine the research questions.

The third reason was that most secondary schools found in the Awi Zone and some secondary schools in the East Gojjam Zone were selected as a sample of the study because the schools found in these zones had been functioning while this study was conducted. However, other schools found in other Administrative Zones, for example, in West Gojjam, were not functioning because of the regional conflict. Fourth, these Zones were selected as a study setting as they are relatively near where the investigator works and lives. Consequently, the investigator could conduct the research at a relatively low cost. Finally, since the investigator is familiar with some of the secondary schools found in these zones, she could get good cooperation from the school directors and teachers during the data collection process so that she could collect adequate, valid, and reliable data.

To select student samples from these schools, a multistage sampling technique was taken as the most appropriate technique of sample selection for several reasons. First, the multistage sampling technique was used as the Grade 9 and 10 student populations in secondary schools was very large, the population was geographically spread out, and it was difficult to create a complete list of all population members. In light of this, Creswell and Creswell (2018) stated that the multistage sampling technique is used in the study area where many populations are found, and it is difficult to get a list of elements at a time.

Second, multi-stage sampling was used as it is easier, faster, and cheaper in the collection of data in the study areas where a higher number of secondary schools are found in a widespread

manner. Third, in the study areas where a higher number of secondary schools exist, the list of students may not be correct. In addition, although the list may exist in every single school, it is expensive and time-consuming. Therefore, multi-stage sampling was taken as a more suitable method of data collection. Finally, multi-stage sampling was considered because each member in the population has a determined probability of selection. This, in turn, makes the selected samples in the study represent a minute aspect of the whole population, and the clusters are supposed to be representative in their entirety.

To select the samples of the study using multi-stage sampling, different steps were followed by progressively narrowing down the sampling frame from districts to students. In the first step, the investigator selected districts as the primary sampling units. At this stage, a list of all districts within the study area was prepared and served as the initial sampling frame. From this list, a predetermined number of districts were selected using simple random sampling to ensure each district had an equal chance of being included in the study. Therefore, from the 13 districts and town administrations, 7 districts, including town administrations (55% of the total districts), were selected using simple random sampling (the lottery system) as a research setting. Therefore, Dejen, Debre Markos, Ankesha, Ayehu Guagus, Agew Gimja Bet, Injibara, and Guangua were selected for the study. In East Gojjam, only two woredas were selected as samples of the study, as most of the schools found under each district and town administrations were not functioning because of the regional conflict.

The second stage the investigator employed was selecting secondary schools found in the selected districts. To do this, a comprehensive list of all secondary schools offering Grades 9 and 10 in each sampled district was compiled. From this list, schools were selected using a proportionate random sampling technique based on the number of schools found in each district. As shown in Table 3.1, one school was selected as a sample from districts that had one to three schools, whereas two schools were selected from districts or town administrations with four or more schools. Accordingly, two schools were selected from the Debre Markos Town Administration, Guangua and Ankesha. From the other districts, such as Agew Gimja Bet, Injibra, Chagni, Ayehu Guagusa and Dejen, one secondary school was chosen. In total, 10 schools were selected as the study sites, using proportional allocation to ensure representativeness across districts with varying numbers of schools.

At the third stage, the sampling frame was narrowed into sections. Since the selected schools had multiple sections (or classes of students), samples of sections for each grade level (Grades 9 and 10) were selected using a proportional random sampling method. The collected data showed that the selected schools had 3-15 sections for Grade 9 and 10 students. Thus, 1 section was selected as a sample section for schools that had 3-5 sections of Grade 9 and 10 students, 2 sections for schools that had 6-10 sections for Grade 9 or 10 students in total, and 3 sections for schools that had 11-15 sections for Grade 9 or 10 students, using a proportionate sampling method. Consequently, 15 sections for Grade 9 and 15 sections for Grade 10 were selected from the total selected schools.

The final stage involved selecting individual students within each chosen section. After the sections were selected, class rosters were used as the sampling frame for selecting the number of students from each section of Grade 9 and Grade 10 students, and it was generally observed that there were 40-50 students in each section. Thus, from the sections that were taken as samples of the study, 30% of the students were selected from each section using a simple random sampling technique. The investigator believed that this percentage of sampling is adequate, as the study population is homogenous. In addition, Kothari (2004) and Krejcie and Morgan (1970), in their sample size determination, stated that if the study population is relatively large(more than 1,000**)** and homogeneous, selecting 10%–30% as a sample is adequate.

Thus, as shown in Table 3.1, from the total of 2424 Grade 9 students, a total of 180 students were selected as a sample for this study using the lottery system. However, out of the total of 180 students selected to fill out the survey questionnaire, only 168 students responded to the questionnaire during the pre-test, post-test, and follow-up stages of this study. During the pre-test, all of the selected 180 students filled out and returned the survey questionnaire. In doing the post-test, 176 students filled out and returned the survey questionnaire. In this stage, out of the selected students, three students dropped out of the schools, while one student did not answer the questionnaire correctly. Thus, the investigator avoided the questionnaire as it might reduce the reliability of the data. At the follow-up test, 5 students out of the total in the previous tests were not available.

Therefore, only 171 students completed and returned the questionnaire. However, during editing of the data, 3 students did not complete each item of the questionnaire properly. Therefore, since the responses given by those students might reduce the validity and reliability of the data, the

investigator removed them. Therefore, 168 students who filled out the questionnaire appropriately were considered samples of the research work.

Using the above-mentioned steps, 193 Grade 10 students were also selected as samples of the study from 2719 students. However, of the 193 students, 180 students filled the questionnaire correctly at each stage of data collection: at the pre-test, post-test, and follow-up stage. At the pre-stage, 192 students filled out the questionnaire correctly and returned it. However, one student did not fill out the questionnaire genuinely. Therefore, this questionnaire was rejected. At the post-stage, 187 students filled out the questionnaire and returned it. While two students did not fill out the questionnaire correctly, one student dropped out of the school. Finally, at the follow-up stage, 180 students completed the questionnaire correctly and returned it. On the other hand, it was reported that while 2 students were transferred to other schools, 5 students dropped out of the school.

Table 3.1: Summary Table for Sample Size of Students

SD	SSED	TNSES		NS		SS		SSES	
		G-9	G- 10	G- 9	G-10	G- 9	G-10	G 9	G -10
Dejen	Gojjam Ber	178	163	4	4	1	1	13	12
Debre Markos	Nigus/T/H	379	509	10	11	2	2	24	28
	Ethio-Japan	292	320	7	8	2	2	26	24
Injibara	Agew Midir	632	613	15	15	3	3	38	37
Ankesha	Mesela	241	278	5	6	1	2	15	29
	Shashina	139	156	3	4	1	1	13	12
Agew G/Bet	Ankesha	256	196	6	4	2	1	26	15
Ayehu Guagsa	Azena	158	179	4	4	1	1	12	13
Guangua	Sigadi	163	167	4	4	1	1	12	13
	Mentehua	144	138	3	3	1	1	14	14
Total		2582	2719	61	63	15	15	180	197

Keys: SD = Sample districts, SSED = Sample schools in each district, TNSES = Total number of students in each school, NS = Number of sections, SS = Samples of the sections, SSES = Sample of students in each section, G-9 = Grade 9, G-10 = Grade 10

The third sample of the research was teachers of Grade 9 and 10 Geography. Those teachers were selected as samples of the study because they are the major contributors to the implementation of CGIs in Geography classrooms, and they have immense responsibilities in implementing geography curricula in the actual classrooms. In light of this, MoE(2015) states that teachers have played a great role in the development of the school curricula and implementation of the curricula through enjoyment, confidence, and innovation.

To select samples from Geography teachers who taught in Grade 9 and Grade 10 for administering the questionnaire, the following steps were taken. First, the districts whose secondary schools were functioning during 2022/2023 were determined. Second, from each district or town administration of the selected administration zones, secondary schools were selected as a research setting using a proportionate random sampling method. In this context, two secondary schools were selected from districts or town administrations that have three or more schools. However, only one school was selected for districts that have only one or two schools. Thus, 17 secondary schools participated in this research work. From these secondary schools, all teachers who taught Geography in both classes (Grade 9 and Grade 10) were selected for a research sample using a comprehensive sampling technique. Thus, 72 teachers were selected as samples of the study from the sample schools.

Table 3.2: Summary Table for Sample Teachers

Districts/Towns	Name of Secondary Schools	No.of Teachers	Sample units
Dejen	Gojjam Ber SS	5	5
Baso Liben	Yejubie Preparatory School	5	5
Debay	Yejubie SS	4	4
	Kuy SS	4	4
Debre Markos	Nigus/T/H	5	5
	Ethio-Japan SS	5	5
Injibara	Agew Midir SS	5	5
	Injibara SS	5	5
Ayehu Guagusa	Azena SS	4	4
Ankesha	Shashina	4	4
Fagita Lekoma	Sirgi SS	3	3

Chagni	Chagini SS	5	5
Zigem	Zigem SS	4	4
Guangua	Sigadi SS	5	5
	Mentehua SS	4	4
Agew Gimja Bet	Ankesha SS	5	5

To select samples of teachers and students for in-depth interviews and classroom observation, the purposive sampling technique was employed. To do this, first, a total of 6 secondary schools were selected. Thus, Debre Markos, Injibara, Chagni, Ankesha, Agew Gimjabet, Shashina, and Gojjam Ber were selected as study areas. These schools were selected purposefully for several reasons. First, collecting data from in-depth interview participants and classroom observations takes more time and face-to-face contact with the participants of the study. To do this, adequate time and resources are also needed. Thus, these schools were selected as they were relatively nearby schools for the investigator. Second, in those schools, it was not very difficult for the investigator to get fully informed consent from interviewees (Geography teachers) who were observed, as most of the teachers and the school principals found in these schools were familiar with the investigator; some teachers were familiar with the investigator and helped her in facilitating, interviewing, and observing the participants of the study. In light of this, Seidman(2012) stated that if the researcher is very familiar with the participants of the study, it is not very difficult to observe or interact with participants or sites for more extended data. Seidman(2012) also adds that to collect qualitative data through in-depth interviews and classroom observation until the data is saturated, the researcher should create a good relationship with the participants of the study.

Hence, 12 Geography teachers teaching Grades 9 and 10 were selected for the study out of the selected schools. Participants were selected considering only their teaching experience (having more than 15 years) and expertise (having an MA degree in Geography and Environmental Studies). The investigator selected these participants using their teaching experience and qualifications as the main criteria, as she believes that teachers who had better qualifications and teaching experience could give detailed data about their experience of integrating CGIs in classroom practices and the challenges they faced during integration.

From these schools, 12 students (six from Grade 9 and six from Grade 10) were also selected as study participants using a purposive sampling technique. Since the investigator was not personally familiar with the students, one Grade 9 and one Grade 10 student were purposefully chosen from each school based on recommendations provided by Geography teachers. The selection focused on students who were able to clearly express their views regarding the improvement of their knowledge, attitudes, skills, and participation in relation to CGIs and related issues. This approach enabled the investigator to obtain detailed and reliable data.

3.8 Data Collection Methods

The data collection instruments of this study were a survey questionnaire, document analysis, in-depth interviews, and a classroom observation checklist.

3.8.1 Survey Questionnaire

The questionnaire served as an important data collection tool for this research work. This data collection tool was employed for the following reasons. To start with, the research work entails the collection of data from a large sample, especially the students. Since the sample size is large and geographically widespread, questionnaire data collection appears to be the most efficient method used. Referring to this objective, Fraenkel, Wallen, and Hyun (2019) reported that self-administered questionnaires work incredibly well as data collection tools for collecting data from large populations that are geographically widespread. This type of data collection appears cost-effective as well as efficient compared to other data collection tools, including conducting interviews or observation studies.

This instrument was also chosen because it minimizes the investigator’s influence during the process of data collection. Unlike interviews or any other interactive techniques, the use of a self-administered questionnaire limits the potential effects of the investigator’s bias on participants' responses. What this means is that data collected through the use of a questionnaire are most likely to represent the genuine opinions, attitudes, and experiences of the participants, rather than those subtly influenced by an interviewer's tone of voice, selection of words, body language, or other interpersonal cues. Regarding this, Kothari (2004) stated that a questionnaire has a great role in enhancing the objectivity of the data.

Third, this research tool acted as the main source of data collection for this research since three out of the four research questions (Research questions 2, 3, and 4) could be answered directly using the quantitative data collected from the survey. In addition, the structured nature of this research tool facilitated the collection of quantitative data that could be used for comparisons and answering research questions effectively..

The questionnaire was prepared for teachers and students. The items of the teacher questionnaire were organized into four major sections. These include demographic information of geography teachers, the extent to which geography teachers integrate CGI into classroom instruction, the effects of teacher integration on students' literacy of CGIs, and the factors influencing the integration of CGIs in geography classrooms. Items of the questionnaire that address teachers' demographic characteristics include teachers' years of teaching experience, academic qualifications, and participation in relevant training programs. These teacher demographics were used to examine whether teacher demographic factors affected teachers' integration of CGIs in Geography lessons. Consequently, they were used to answer research question four.

The second section concerned the extent to which geography teachers integrate CGIs in geography lessons. This involved teachers' performance of integrating CGIs for the development of students' knowledge, skills, attitudes, and participation regarding the problems of the CGI, as well as their use of the appropriate method of teaching and sources of information. The third section focused on the items used to gather data about the impact of the integration of CGI on the students' literacy of the CGIs, including their knowledge, skills, attitudes, and participation concerning the CGIs.

The students' questionnaire has two parts: students' grade level and their perceived literacy of CGIs. Items that talk about students' perceived literacy of CGIs have four parts. These include students' perceived knowledge, skills, attitudes, and intention to participate in solving problems related to CGIs.

Regarding the design of the items of both teachers' and students' questionnaires, two approaches were followed. While most of the items were designed by the investigator using the review literature, some of the others were adapted from a previous study. In addition to the items developed from the review literature by the investigator, some items related to the extent teachers integrate CGIs, and the effect of integration on students' literacy of CGIs were adapted from

Ballantyne(1999). On the other hand, items related to teachers' proper use of teaching methods and sources of information were designed by the investigator himself based on the review of the literature. When the items were adapted, the investigator adapted the items of the questionnaire in different ways. First, the investigator identified the items of the questionnaire that are closely aligned with the objectives or research questions of the study. To do this, the investigator thoroughly reviewed the original questionnaire, the dimension or construct each item measures, and the response scales used. Finally, the items of the questionnaire were adapted by modifying or rewriting the words of the items to make the items more understandable to respondents, changing the items into our own context or educational system, removing irrelevant items, and assessing content validity(changing items that talk about other issues into CGIs).

Furthermore, to reduce the artificiality or social desirability bias that can occur when respondents attempt to provide answers they believe are expected, the participants were well oriented about the role of their genuine responses in the validity and reliability of the results of the study before the questionnaire was administered. This sequencing allowed the researcher to gather responses uninfluenced by direct questioning and to cross-check self-reported information against observational evidence, thereby enhancing the credibility and validity of the collected data.

3.8.2 Document Analysis

The second method employed for data collection was document analysis (analyzing Grade 9 and 10 Geography topics). The investigator used this method for some reasons. First, textbooks remain one of the most widely used and influential instructional resources in schools. As such, analyzing them provides a rich and reliable source of data for examining the presence and treatment of key topics of CGIs**.** Second, textbooks are often designed and approved by national curriculum authorities and reflect what learners are expected to achieve, and serve as a direct representation of educational goals, including the integration of CGIs. In light of this, Pingel (2010*)* argues that textbooks play a significant role in shaping teachers' and students' worldview and reflect the official stance of education systems on social, political, and environmental issues. Thirdly, in several learning settings, textbooks remain the primary source that teachers and learners rely upon to increase their knowledge, skills, and attitudes associated with any given issue/topic. Regarding this, UNESCO (2016) highlights that within resource-poor settings, the teaching and learning process is characterized by the use of textbooks, and it shapes what is

taught and learned within the class. Moreover, it is highlighted that the approach through which the given subject of any particular issue is structured within the textbook.

The investigator took the whole part of the textbooks when she conducted the document analysis. To do this, the investigator examined all the CGIs and other geographic topics found in each unit of the textbooks, and counted the frequency of the content items, objectives, and instructional activities of CGIs and other geographic topics. Finally, the investigator examined the extent to which the content items, learning objectives, and instructional activities of CGIs are integrated into the Grade 9 and Grade 10 Geography textbooks compared to the content items, learning objectives, and instructional activities of other geographic topics found in the textbooks. To achieve this, the researcher conducted a quantitative analysis of the textbooks by counting the frequency of CGIs, content items, learning objectives, and instructional activities related to CGIs. In addition, qualitative analysis was employed to examine how effectively these content items, learning outcomes, and instructional activities were integrated, and whether they were presented in ways that promote students' knowledge, skills, attitudes, and participation in CGIs.

Thus, the data obtained from document analysis were used to address the first research question: *How well do Grade 9 and 10 Geography textbooks integrate Contemporary Geographic Issues?* More specifically, the document analysis focused on identifying whether the textbooks incorporate CGIs that are relevant at both local and global levels, issues that are widely discussed in the media, public discourse, or by the scientific community. In addition, the analysis examined the degree to which the textbooks integrate content items, learning objectives, and instructional activities. Particular attention was also given to how effectively these components are designed to promote students' knowledge, attitudes, skills, and participation concerning CGIs. In this regard, Kerlinger (1986) asserts that, in order to evaluate the integration of environmental education objectives, the stated goals found in both curriculum guides and students' textbooks should serve as the primary units of analysis.

3.8.3 Classroom Observation

Classroom observation was the third data collection method for this study. The observation was taking place when Grade 9 and 10 Geography teachers taught CGIs, such as land degradation,

population growth, environmental pollution, climate change, and unplanned urbanization. To do this, the observation guideline was prepared by the researcher herself using the literature review focusing on the ways/methods of integrating CGIs into the classroom practices. There are two reasons this instrument was used as a data collection method. First, this instrument was used to get accurate, real, and actual practices and interactions of teachers in integrating CGIs in the classroom. This indicates that classroom observation represents the eyes, ears, and perceptual sense of the investigator. Thus, it helped the investigator to determine whether Geography teachers were simply covering the content for the sake of delivering fragmentary facts about CGIs or meaningfully engaging students in inquiry, attitudinal development, problem-solving activities, and participation related to contemporary issues.

Therefore, this instrument enabled the investigator to see what Geography teachers actually do while integrating CGIs in the classroom, rather than relying only on what they say they do in surveys. In light of this, Patton (2002) states that observation is preferred to other instruments such as survey questionnaires and key informant interviews as it helps to collect the real practice about the phenomenon being studied. Cohen, Manion, & Morrison (2018) also add that classroom observation provides firsthand information, which is critical for understanding teacher behavior in its natural setting.

Second, this method was used as it validates or complements self-reported data obtained from the survey questionnaire. In the self-reported survey data, teachers may over- or under-report their integration of CGIs due to social desirability bias, misperception, or recall issues. Thus, observations can help triangulate and validate self-reported data from questionnaires. Regarding this, Creswell & Creswell (2014) point out that observational data are used to cross-check data obtained from self-reported questionnaires, especially in complex or value-laden educational topics.

In relation to the focus of classroom observation, this method was used to collect accurate and detail data about teachers' practice of integrating CGIs into the classroom, particularly their practices of presenting content sections of CGIs in the way of developing students' knowledge, attitudes, skills and participation on environmental issues, their effort to engage students on activities used to enhance students' knowledge, attitudes, skills and participation on environmental issues, and their emphasis the four learning outcomes of integrating CGIs such as knowledge, attitudes, skills and participation. Thus, the observation guideline consisted of different issues

like CGIs occurring at local and global levels, the learning outcomes teachers focused on, the types of teaching methods, and sources of information teachers employed while teaching CGIs, and teachers' practice to engage students in different activities used to enhance students' knowledge, skills, attitudes, and participation in environmental issues. Therefore, the data obtained from this instrument were used to answer the second research question: "To what extent do Geography teachers integrate CGIs in Geography classrooms?"

Observation was taking place in two ways: using observation guidelines and open handwritten notes. In the case of using an observation guideline, observers collected data on how teachers integrate CGIs effectively. In the case of using open handwritten notes, observers collected data that were not covered by the guideline. Here, the observers used direct quotes or descriptions of the context and any behavioral experiences taking place in the classroom. In this regard, all classroom events showing performances of Geography teachers in integrating CGIs were recorded and interpreted.

To keep the observation data more objective and reliable, two observers in one class simultaneously took the observation. These observers were non-participant observers. These observers observed geography teachers without becoming involved in their activities. The role of these non-participant observers was to observe how well geography teachers integrate CGIs in their classroom practices and collect valid and reliable information about observable behaviors and events related to the integration of CGIs. They observed Geography teachers when they taught each CGI in the classroom. As six geography teachers in each grade level were selected to be observed and six and five CGIs were found in grade 9 and in textbooks, respectively, a total of 66 classroom observations took place. However, before the actual classroom observation was conducted, the investigator gave training to the observers using the following procedures. First, the investigator informed the purpose of the observation. Then, she gave them a copy of the observation guideline and asked them to read the contents of the observation guideline. Third, the investigator asked if there were unclear items in the observation checklist. After clarifying the unclear items, the investigator highlighted how they could collect the qualitative observation data using the observation checklist and handwritten notes. Then she asked them if there were any unclear ideas. Finally, they were told to determine whether the teachers integrated CGIs based on the observation checklist. If they get a behavior that is not found in the observation

guidelines, and if they believe that the behavior is related to the research question, they are required to record the event/behavior.

3.8.4 In-depth Interview

An in-depth interview was the other instrument used in this study. It was used for the following reasons. First, it gives freedom for the participants to give their responses in an open-ended manner using their own words rather than being restricted to the preconceived notions of the investigator. Second, it is used to collect in-depth data as it is conducted through direct contact with participants of the study. Third, it is believed that in-depth interviews can easily help to obtain hidden data when the participants are commenting and narrating their learning and teaching experiences during the interview. More importantly, it helps to capture teachers' and students' lived experiences on the integration of CGIs in the textbooks. That is, it provides a platform for teachers and students to express their firsthand experiences, attitudes, and beliefs regarding the inclusion of CGIs in the textbooks. Finally, it is known that teachers' and students' classroom experiences play a great role in examining whether or not the integrated CGIs are realized in classroom practice, the effects of integrating CGIs on students' environmental literacy, and the factors that affect the integration of CGIs in the classroom. It also helps to identify connections/disconnects between textbook content and classroom needs, highlighting areas where the textbook does not align with the learning objectives of CGIs.

Regarding the content of the in-depth items, they incorporate three important points. These include teachers' and students' views on the integration of CGIs in Grade 9 and 10 Geography textbooks, particularly whether or not the content, learning objectives, and instructional activities were integrated in the textbooks in a way that develops students' knowledge, attitudes, skills, and participation on CGIs. Moreover, the items include students' views on the effect of integrating CGIs in the classroom on students' environmental literacy and teachers' experiences on the factors that affect their integration of CGIs in the classroom. Therefore, the data collected through this instrument answered research questions 1, 3, and 4 by supporting the larger quantitative data. Thus, they were used to collect data about the integration of CGIs in Grade 9 and 10 Geography textbooks, the determinants that affect geography teachers' integration of CGIs in the classrooms, and students' views on the effects of integrating CGIs on their environmental literacy. To get detailed and adequate data, the interview was held in Amharic. The data was collected using two digital devices: an audio recorder and a smartphone. The interview data

were collected by the investigator. After the in-depth data from teachers and students were collected using the Amharic version, the data were translated and transcribed into English for the sake of analysis.

3.9 Data Collection Procedures

Since the produced data in the study process invariably requires multiple techniques to be involved in the collection stage, different data collection procedures were employed while the data was collected using each instrument, both at the piloting and the main data collection stage. To collect data using a questionnaire, the following procedures were employed. First, consequent to the development of the instrument, the investigator got a permission letter from Bahir Dar University and gave it to secondary school principals. Then, the purpose of the study was explained to them, and permissions were obtained from each school principal.

After the investigator had obtained permission from the school directors, the investigator, along with other data gatherers in each school, informed the respondents about the objectives of this research. The procedures used to ensure the confidentiality of responses provided by them were clearly discussed, and the participants were asked for their verbal consent. After the consent, they were informed that they had the right to withdraw from the research process without any negative repercussions. Then, they were made aware of the significance of honest responses needed by them to ensure that the results derived in this research are accurate.

Since data from students using the survey questionnaire were collected at three different points, before CGIs were taught in the classroom, immediately after instruction, and sometimes later, the following procedures were applied. At the pre-test stage, students were asked to complete the survey questionnaire designed to assess their baseline perceived literacy of CGIs(their knowledge, attitudes, skills, and participation) related to CGIs after securing permission from school principals and obtaining informed consent from the participants. Immediately after the teaching of CGIs, the same group of students completed the survey questionnaire for the second time to investigate the immediate effects of integrating CGIs into classroom instruction on students' literacy of CGIs. After a set period of time had passed following the CGI instruction, the follow-up test was administered to the same group of students. The survey questionnaire was given again to assess whether the students' perceived literacy of CGIs gained from the integra-

tion of CGIs was retained over time. This stage allowed the investigator to examine the sustainability of the instructional effects.

In an attempt to collect data from teachers using a questionnaire, the following steps were used. First, the questionnaire was administered to all 72 Geography teachers teaching Grade 9 and 10 Geography in the selected schools. Then, the teachers were informed how to fill out the questionnaire. In addition, the teachers were encouraged to give genuine responses to each item. Finally, the questionnaires were given to each participant and collected immediately after they finished filling out the questionnaire.

The important details for the in-depth interviews were gathered after CGIs were integrated into Geography classrooms. To gather data using this approach, the following steps were followed. First, the respondents were informed about the nature of the research and the details of the questions. Later, they were told that they should feel free while explaining their responses, considering that the responses are for research alone. The respondents were then told that they should be free to say whatever they wished while responding. Then, the interview was carried out using the Amharic language. The use of the Amharic language helped the respondents explain their ideas as freely as possible so as to get sufficient data. When carrying out the interview, the important details from the key informants were documented using an audio recorder and a smartphone. After completing the interview, data were retrieved from the approach. The data was replayed back, documented, and converted into English for analysis.

In the same manner, the observation data were collected after the purpose of the study was informed to the observed teachers. Then, they were asked whether they were willing to be observed while they were teaching the CGIs. Having checked their voluntariness, the classroom observation was taking place using the observation guideline and open-hand written notes. Finally, the data was coded and organized to support the larger quantitative data.

In relation to collecting data using document analysis, the following procedures were employed. First, Grade 9 and 10 Geography textbooks were collected by the investigator. Then, the investigator set criteria (coding sheet) for evaluating the integration of CGIs in the curriculum materials and collected the quantitative and qualitative data in the following way. To collect the quantitative data, the following structured and systematic procedures were followed. The first step was predefining the units of analysis. In this study, the units of analysis included CGI-related

topics, content sections, learning objectives, and instructional activities found within the textbooks. In light of this, Krippendorff (2013) states that when data is collected using document analysis, it is very important to clearly and systematically define units of analysis to ensure the reliability, validity, and replicability of the data**.** Thus, the investigator identified specific elements such as the frequency with which CGIs appeared in the textbooks, content sections, learning objectives, and instructional activities of CGIs found within the textbooks.

To collect qualitative data from textbooks, the investigator utilized a content analysis method following the procedures set by Elo & Kyngäs (2007). This process was used as it is considered the best process for highlighting the way in which the issue has been shaped into the material for learning. For this process, the analysis took place in three stages: preparation, organization, and reporting. At the preparation level, the process of analysis involves the selection of the chapters, topics, content sections, specific parts, and particular quotes that qualify the study. For the preparation level, the researcher engaged in a detailed study of the material that the study comprises, focusing on the explicit and implicit details the material holds. At the organization level, the investigator organizes the data using the deductive approach.

In this stage, the investigator focused on how well (effectively or not) the content sections, learning objectives, and instructional activities were integrated in the textbooks. To do this, the analysis was carried out by following the principles for integrating CGIs into educational content, particularly using the frameworks and guidelines developed by Palmer (1998), the Tbilisi Declaration (1975), and Ethiopia's Education Sector Development Program VI (MoE, 2021). The final phase, *reporting*, involved systematically organizing and presenting the data according to the identified categories. At this stage, the investigator ensured that the document analysis clearly and coherently reflected how well CGI-related content items were integrated into the textbooks. Finally, the researcher assessed the materials through coding, categorizing, and thematizing.

3.10 Pilot Study

Before the main data was collected, a pilot study was conducted to ensure the clarity, validity, and reliability of the instruments. Piloting was also conducted to evaluate the accuracy and consistency of the instruments before the actual data collection took place. In light of this, Cohen et al(2018), Creswell and Creswell (2018) and Kothari(2004) state that piloting has a significant

role in evaluating the accuracy and consistency of the instruments before the actual study is conducted. Accordingly, the following procedures were employed in piloting the survey questionnaire.

3. 10 .1 Checking the Validity and Reliability of the Questionnaire

To ensure the validity and reliability of the questionnaire, the investigator followed the following steps. First, upon designing the questionnaire, the investigator carried out a scrutiny of every item against the objectives of the research. Second, the investigator sought validation from other researchers, secondary school geography teachers, and supervisors as a means for establishing the validity of the contents. Upon getting the comments from each one, the investigator modified the questionnaire by eliminating irrelevant questions and clarifying ambiguous instructions and questions.

After verifying the content validity of the instrument and revising unclear items and instructions, the investigator conducted a pilot study with Grade 9 and 10 Geography teachers and students who shared similar characteristics with the target population. The participants were selected from three secondary schools, Keranio, Damot, and Kidamaja, that introduced the new Grade 9 and 10 Geography textbooks in the 2022/2023 academic year. The student questionnaire was piloted at Keranio Secondary School in East Gojjam Zone with one Grade 9 and one Grade 10 section comprising 48 and 43 students, respectively. However, the pilot study for teachers was extended across the three schools, involving 12 teachers who taught Geography in Grades 9 and 10, as the number of Geography teachers was limited.

Then, the questionnaire was administered in conditions that could create a situation similar to that of the main study. During its implementation, it was clearly explained to the subjects the purpose and form in which the instrument is proposed. After completing it, participants were asked about the clarity of instructions and items, the appropriateness of the language used, and what ambiguities or problems were identified.

On the basis of the feedback and suggestions, various modifications were made. Some of the items were stated clearly, while others were deleted as they were irrelevant or redundant. For example, in the teachers' questionnaire, eight items were deleted. Also, in the students' questionnaire, six items were deleted as they overlapped with other items. Apart from deleting irrelevant

and redundant items, various modifications were also made for certain items to make them clearer and more specific.

For example, within the section on teachers' perceived literacy of CGIs, items 2, 6, and 9 were revised based on the feedback provided by teachers. For example, item 2 was double-barreled, so the respondents had trouble deciding on which part they should respond to. Item six was ambiguous because of the use of the ambiguous word "regularly. Similarly, in the students' questionnaire, items 4, 6, and 9 (addressing students' knowledge) as well as items 4, 7, and 8 (addressing students' perceived skills) were modified to improve clarity and accuracy. For example, item 4 was very ambiguous due to the presence of the ambiguous words. Following these revisions, the final version of the questionnaire was prepared and subsequently administered in the main study. The reliability coefficient of the survey questionnaire for each item group is presented in the following table.

Table 3.3: Reliability for Teachers' Questionnaire

No.		Item Focus	Reliability Coefficient
1	Grade 9 Students' Literacy of CGIs	Students' perceived knowledge of CGIs	.877
		Students' perceived skills of CGIs	.811
		Students' attitudes toward CGIs	.842
		Students' intention to act on CGIs	.729
2	Grade 10 Literacy of CGIs	Students' perceived knowledge of CGIs	.796
		Students' perceived skills CGIs	.755
		Students' attitude towards CGIs	.823
		Students' intention of acting on CGIs	.659
3	Teachers' Performance of Integration	Teachers' focus on the learning outcomes of CGIs	.847
		Teachers' use of different teaching methods	.708
		Teachers' use of different sources of information	.761
4	Predictive factors	Teacher views on material quality	.796
		Teacher literacy of CGIs	.893

3.10 .2 Checking the Trustworthiness of the Qualitative Data

While validity and reliability are the primary concerns in quantitative research, trustworthiness serves as the central criterion in qualitative research. Accordingly, the investigator ensured the trustworthiness of the qualitative data throughout the entire research process—from the design of the data collection instruments to data collection, analysis, and interpretation of the findings. This was achieved by adhering to the established criteria of credibility, dependability, and confirmability.

To enhance the credibility of this qualitative data, numerous methods were used. First, the instruments were prepared carefully based on the objectives of the study. Then, they were given to colleagues, secondary school geography teachers, and supervisors to get feedback on whether the items adequately represented the research objectives and constructs under investigation, and the clarity of the items. Next, necessary modifications were made to refine the wording, relating, sequencing, and scope of the questions. After the instruments were modified, the investigator and data collectors established trustworthy relationships with participants of the study to maintain the credibility of the study and collect data. This, in turn, made the participants feel comfortable to disclose data, ameliorate respondents' reactivity, and avoid respondent bias. This, in turn, helps to produce secure, accurate, and trustworthy data. After the data was collected, it was triangulated with the quantitative data through rich description by presenting the participants' voices under each theme and providing a detailed description of each case and extensive quotations from teachers' and students' interview transcripts.

Peer briefing was the other strategy the investigator employed to enhance the credibility of the qualitative data. To do this, one of the investigator's friends, who has good experience in qualitative research and has taught Geography for many years, reviewed the data and the research. The investigator's supervisors also reviewed the concept paper, proposal, data collection tools, data analysis, and interpretations, and gave constructive comments on the paper. The investigator did this because she believed that getting feedback from different people could increase the credibility of the study.

Another method of ensuring the trustworthiness of the data is using dependability. It is the stability, transparency, and consistency of the qualitative research process over time. In light of this, Lincoln and Guba(1985) described that stability and clarity of the qualitative data are en-

sured by the stability, transparency and consistency of the data. To establish the dependability of the qualitative data, the investigator took the following measures. First, the investigator made an audit trail. This was done by keeping detailed documentation such as handwritten observation data, interview transcripts, coding decisions, and data analysis procedures. This demonstrates that findings are grounded in systematically collected and analyzed data. Second, the dependability of the qualitative data is approved through peer examination or peer debriefing. To do this, the investigator gave the research paper to colleagues, geography teachers, and supervisors to get constructive comments. This external input helps to minimize bias and ensure the consistency of findings. Finally, the dependability of the study is ensured by providing a transparent account of how participants were selected, how data were collected, and how themes emerged during analysis, which in turn enables other researchers to understand, evaluate, and potentially replicate the study.

The trustworthiness of the qualitative part of the research was also ensured through conformity, which refers to the objectivity of the qualitative data. It is the step taken to ensure that the data and findings are not influenced by participant and/or researcher bias. Although it is difficult to be totally free from bias in collecting qualitative data, the investigator and assistant data collectors became free by reflecting on their prejudgments, dispositions, opinions, and thoughts about the phenomenon being studied while collecting, transcribing, and analyzing the data. This implies that the data obtained from the survey questionnaire, classroom observation, in-depth interview, and coding sheet results showed the same results, repeatedly checking and rechecking data, an audit trail at each step of data analysis, and the findings are not colored by the researcher's bias.

The validity of the classroom observation guideline was checked using different techniques. First, an observation guideline was prepared carefully based on the objectives of the study. Then, this instrument was given to colleagues, secondary school geography teachers, and supervisors to get feedback on whether the guideline adequately represented the research objectives, constructs under investigation, and the clarity of the guideline. Next, necessary modifications were made to refine the guideline based on the given comments. Finally, its suitability was assessed during the pilot study. After the pilot study, some modifications, particularly on the clarity of the statements in the guideline, were made.

3. 10. 3 Lessons Learned from the Pilot Study

In addition to checking the validity, reliability, and trustworthiness of the data, the investigator learned a lesson from the pilot study. As stated above, the survey questionnaire was the primary data collection instrument for this study. Consequently, a significant focus was made on evaluating whether the survey items were appropriate for collecting data across various aspects of the research. Based on the pilot study conducted in the selected schools, the following lessons, which were very important for the main study, were obtained.

- For the teacher questionnaire, initially, the investigator prepared a total of 154 items. However, after the pilot study, she found that 8 of the items were irrelevant to the focus of the study. Thus, these 8 items were removed.
- At the beginning, the number of items for the Grade 9 students' questionnaire was 61. However, six of them were removed as they had the same idea as the other items. Thus, the number of questionnaire items for the pilot study was 51. In the Grade 10 questionnaire, 4 items were removed. While 1 item was removed as it was vague, the other three were removed because of their irrelevance.
- I also learned how to prepare semi-structured interview items. Initially, I prepared 12 interview items which have similar ideas. However, during the interview process, I found that the number of interview items was more, and it took longer to interview. The interview items were also redundant, which reduces the active engagement of the participants in the interview process. As a result, I realized that I should reduce the number of interview items to make the data collection process more effective and obtain adequate data. To address this issue, I combined some interview items which addressed similar concepts. Thus, while the number of student interview items was changed from 8 to 3, the number of teacher interview items was changed from 8 to 4.
- I also learned how to effectively conduct an interview. In the pilot study, I interrupted the interviewees before they finished their responses. However, when I transcribed the interview data, the respondents at some points did not give me adequate and complete data, as I interrupted them. Thus, in the main study result, I was waiting for the respondents until they fully finished their responses before proceeding to the next question.

3.11 Data Analysis Techniques

The data obtained from different methods were analyzed using quantitative and qualitative data analysis techniques. To analyze the quantitative data obtained through document analysis and the survey questionnaire, the following procedures were used. In general, after the quantitative data were collected, the data were coded, edited, digitized, entered into SPSS 25 version, and analyzed using descriptive and inferential statistics. From the different types of descriptive statistics, frequency, mean, rank mean, median, and standard deviation were employed. Whereas, among the different types of inferential statistics, one-sample t-test, Friedman's Rank Mean Order Test, repeated measure of ANOVA, multiple regression, and Post-hoc test were used.

For the purpose of analyzing the qualitative data gathered through the review of documents, in-depth interviews, and classroom observations, the research used a systematic approach. This approach comprised a number of phases, including the repeated reading of the data, the transcription of the information gathered, coding the data, categorizing the data, identification of broad themes, and presenting the findings through thematic analysis. The next sections are a comprehensive description of how each data analysis method, both quantitative and qualitative, was used to answer the research questions or objectives of the study. Therefore, for clarity and coherence, analysis techniques are mentioned here according to the specific research questions and objectives they were intended to address.

3.11.1 The Extent of Contemporary Geographic Issues Integrated in Textbooks

For the purpose of meeting this objective, the data collected from the document analysis and key informants were employed. The data collected using these methods were subjected to both quantitative and qualitative analysis. Although the quantitative method of data analysis was employed in ascertaining the extent to which CGIs were incorporated in the textbooks, the data were complemented by the use of the qualitative method.

To conduct the quantitative analysis, the investigator followed the following procedures. After the quantitative data were obtained through document analysis, the investigator identified what the quantitative evidence constitutes, such as the frequency with which each CGI appears in the textbooks, and the frequency with which CGI-related content, learning outcomes, and instructional activities are incorporated in the textbooks. In light of this, Bowen (2009) notes that having a clear focus in document analysis helps to determine the type of documents to collect and the data to extract for either qualitative or quantitative purposes.

The next step was to formally count the frequency of CGIs and associated components like the content section, learning objectives, and instructional activities related to CGIs through the use of a coding sheet. To do this, the investigator used the coding sheet as it exactly specifies what aspects were to be quantified, and it ensures consistency throughout the analysis.

Finally, the data were analyzed through descriptive statistics, which included the use of frequencies and percentages to examine the extent to which CGIs and content items, learning objectives, and instruction activities are integrated in the textbooks. These analysis techniques were also used to examine the extent to which the content section, learning objectives, and instructional activities are integrated in the textbooks.

The qualitative data from the textbook analysis were also examined through content analysis. To do this, first, the investigator identified how well contemporary geographic issues are integrated across sections. This involved reviewing whether the content areas of CGIs address current environmental problems occurring at the local and global levels. Moreover, the investigator assessed whether the content items, learning objectives, and instructional activities are presented in a way that develops the target knowledge, skills, attitudes, and participation that students are expected to achieve. Finally, the investigator analyzed the data using thematic analysis.

To examine the extent to which CGIs and their components are integrated in the Geography textbooks, the investigator used the frameworks developed by the conferences held at different times, particularly the Belgrade 1975 conference, Palmer's(1998) framework of environmental education, and the Education Sector Development Programme of Ethiopia(ESDP VI). Because of the local and global environmental challenges, different conferences held at different times and places (Belgrade, Yugoslavia, 1975; Tbilisi, Georgia, 1977; Thessaloniki, Greece, 1997; Bonn, Germany, 2009; Aichi–Nagoya, Japan, 2014; Germany, 2021). These conferences have shaped how current environmental issues are integrated into school curricula. More importantly, the 1975 Belgrade conference, an expert workshop convened by UNESCO–UNEP lied a milestone in understanding environmental issues and how they are integrated in the school curricula. They framed that when environmental issues are integrated in the school curricula, they should focus on what learners should know, value, and be able to do related to environmental issues. It also sets environmental issue objectives incorporated in the school curricula, the guiding principles, and implementation strategies of these issues. All these objectives, guidelines, and imple-

mentation strategies are still cited today by policymakers, educators and curriculum developers. Based on this framework, the Tbilisi 1977 conference urged member states to introduce environmental concerns into educational policies, contents, curricula, and teacher preparation across all levels of schooling.

Based on these guidelines and principles, the Ethiopian Ministry of Education, in its Education Sector Development Programmes (ESDP IV, ESDP V, and ESDP VI), has also been dedicated to introducing cross-cutting issues that focus on environmental issues and protection strategies across the school curricula at each school level. For example, ESDP IV (2010/11–2014/15) states that environmental issues should be integrated across primary, secondary, and Technical Vocational Education and Training curriculum materials, such as teacher guides and student textbooks. This program also focuses on establishing systems that enhance students' participation in environmental issues, like school environment improvements. More importantly, this program established objectives and strategies used to implement the integration of environmental issues in the school curricula (MoE, 2010). ESDP V (2015/16–2019/20) also keeps environmental issues and protection as a cross-cutting area. It recommends that environmental issues should be integrated into the school curricula to enhance students' knowledge, attitudes, skills, and participation in environmental issues. To achieve these objectives, this program encourages schools to expand environmental clubs, strengthen school greening and waste management, engage communities to be involved in protecting their environment, and encourage partnerships and resource mobilization for environmental issues (MoE, 2015).

Finally, the ESDP VI (2020/21 - 2024/25), which fills the gaps of the previous EDSPs and scales up the objectives, places much emphasis on the integration of environmental issues in the school curricula (MoE, 2021). It emphasizes that when environmental issues are integrated into the school curricula, the learning outcomes/objectives and strategies of implementing them in the school curricula should be integrated effectively. As a result, it is recommended that educational institutions should play their own role in enhancing learners' knowledge, awareness, attitudes, skills, and participation on these issues (MoE, 2021).

To analyze the qualitative data collected through in-depth interviews, the researcher followed a series of procedures. First, the recorded data was listened to repeatedly, and transcribed from verbatim descriptions to written descriptions. Second, microanalysis of the transcribed data was conducted to gain familiarity and an in-depth understanding of the information. Third, the tran-

scribed data was translated from Amharic to the English version. Then, the data were coded using a mixed coding approach: open coding, axial coding, and theoretical coding. While open coding was used to identify the concepts, properties, and dimensions of the data, axial coding was used to break down the core themes and relate those categories into subcategories. On the other hand, theoretical coding was used to relate all categories and subcategories and to address the objectives of the study. After the data was coded using these coding systems, it was examined the analysis should focus on the following themes: the relevance of the integrated CGIs, how well content items, learning objectives, and instructional activities under each CGI are integrated into Grade 9 and 10 Geography textbooks. To organize the data into these sections, the researcher employed the latest Education Sector Development Program VI (MoE, 2021), the national curriculum framework, and the recommendations of international conferences (Palmer, 1998) as guiding frameworks. The data were then analyzed through thematic analysis, using description, direct quotations, and explanatory accounts to illustrate the findings and complement the broader quantitative results.

3.11. 2 Integration of Contemporary Geographic Issues in Geography Classrooms

In order to explore the degree to which grade 9 and 10 geography teachers incorporate CGIs within the actual classroom, the results gathered from a survey questionnaire and observation checklist were used. The following procedures were conducted to analyze the results gathered from the research approaches and respond to the research question, "To what extent do Grade 9 and 10 Geography teachers integrate CGIs?."

After the data were collected using the survey method, the data were coded, edited, digitized, and entered into SPSS 25 version. Then, the data was analyzed using quantitative data analysis techniques such as mean, standard deviation, median, one-sample t-test, Friedman Rank Order Test, and pairwise comparisons. As indicated in Chapter Four (4.3), some indicators show teachers' performance in integrating CGIs. These include teachers' levels of integrating elements of CGIs used to develop students' knowledge, attitude, skills, and participation on CGIs in a balanced way, teachers' performance in using different types of teaching methods and sources of information during integration. Therefore, each of the above quantitative analysis methods is used in the following way.

To examine the extent to which Geography teachers integrate content items, learning objectives, and instructional activities of CGIs in the way to enhance students' knowledge, attitudes, skills, and participation on problems related to CGIs, mean scores were used. In this regard, one sample t-test was also used to examine whether there is a significant mean difference in teachers' performance of integrating CGIs in the ways of developing students' knowledge, attitudes, skills, and participation on CGIs between the observed mean and the expected mean.

To examine the extent to which geography teachers use different types of instructional methods and sources of information, the rank mean, and median were used. To examine if there is a significant mean difference in teachers' frequency of using each type of teaching method Friedman Rank Order test was used. In addition, a Wilcoxon Signed-Rank post-hoc test was used to investigate in which specific pairs of teaching methods and sources of information a significant difference occurred. The rank mean and the Friedman Rank Order Test were also used to examine the extent to which geography teachers use a variety of sources of information to integrate CGIs in the classrooms, and there was a significant difference in teachers' use of each source of information.

To support this quantitative data, classroom observation was also used. To analyze this qualitative observation data, the following procedures were used. First, the recorded data was repeatedly read to make sense of the evidence. After the recorded data was understood adequately, it was coded, categorized, and thematized into its parts, particularly into teachers' practice of integrating CGIs into the classroom in a way to enhance knowledge, attitudes, skills, and participation on environmental issues, and the types of teaching methods and sources of information teachers used while integrating CGIs in the classroom. Finally, this qualitative observation data was analyzed using thematic analysis, and it was triangulated with the larger quantitative data.

3.11.3 The Effects of Integrating Contemporary Geographic Isuuses on Students' Literacy of CGIs

In order to meet this research objective, the data collected from the survey questionnaire were analyzed using quantitative data analysis methods such as mean score, standard deviation, repeated measures of ANOVA, and the pairwise comparison test. Mean Score was used to determine the extent to which teachers' integration of CGIs in the classrooms affected student literacy of CGIs (knowledge, skills, attitudes, and participation) at three time points(at the pre-test, post-

test, and follow-up test). Repeated measures of ANOVA were used to determine if there was a significant mean difference in student literacy of CGIs (knowledge, skills, attitudes, and participation) at three time points(at the pre-test, post-test, and follow-up test). Last but not least; pairwise comparison test was used to determine at which time points (that is, between pre-test and post-test, pre-test and follow-up test, and at post-test and follow-up test) a significant difference in student literacy of CGIs occurred.

To complement the findings obtained from the survey, qualitative data were gathered using in-depth interviews. To do this, first, the interviews were carried out using an audio recorder and smart phone, and the interviews were listened to periodically and extensively. Subsequent to this, the detailed interviews were transcribed and translated from Amharic to English. After the translation, a micro-analysis of the data was carried out to get an extensive understanding of the data. Following this step, coding of the data took place to break down the raw data into its parts using open, axial and selective/theoretical coding. Using open coding, the raw data were broken down into smaller units to identify key concepts. These concepts were again categorized into categories using axial coding by examining the relationships among categories that had emerged. Finally, through theoretical (selective) coding, the categories were integrated and refined into a central theme that directly addressed the research questions. Finally, the qualitative data were analyzed through thematic analysis.

3. 11.4 Investigating the Predictive Factors Affecting Teachers' Integration of CGIs into Geography Lessons

To examine the predictive variables that affect teachers' integration of CGIs in the classroom, a multiple regression model was employed. Besides, the unstandardized coefficient was used to examine how much the dependent variable (teachers' integration of CGIs in the classroom) changes when the independent variables (such as teacher demographics and material quality) increase by one unit, while other predictors remain constant. To support this quantitative data, the data obtained from the in-depth interview was also used. And this data was analyzed qualitatively through thematic analysis, particularly using description, explanation, and quotation as stated in 3.8.2

3. 12 Ethical Considerations

Different procedures were used to ensure ethical conduct in conducting the study. First, the investigator obtained a permission letter from Bahir Dar University, where she attended her DED education. Then, she gave this permission letter to the school directors and told them the purpose of the study. After the investigator got permission from the directors, she contacted the participants of the study and informed the purpose of the study and what they could expect from the participants of the study. Moreover, they were informed about the confidentiality of their responses, which were used only for research purposes. The participants were also informed that their names would not be revealed in this study, and their scripts and results on each analysis would be allocated pseudo-names. The investigator also fully informed the participants about the nature and the goals of the research, and no teacher or student would be required to participate in the study without his/her interest. Even, each teacher and student was informed that he/she could withdraw himself/herself from the study if there was anything that was not comfortable for him/her.

CHAPTER FOUR: RESULTS

Introduction

This study explored the integration of CGIs in Grade 9 and 10 Geography textbooks and classroom instruction. Specifically, this chapter presents the findings related to the extent and manner in which CGIs are incorporated into the textbooks; the degree to which teachers integrate CGIs into their lessons, the impact of teachers' integration of CGIs on students' environmental literacy, and the determinants that affect teachers' levels of CGI integration. The chapter also compares the study's results with findings from previous research. To achieve these objectives, the study used Grade 9 and 10 Geography textbooks, teachers, and students as samples of the study.

4.1 Geography Teachers' Demographic Information

Teacher demographics are important in properly incorporating the use of the CGIs in the classroom. Hence, teacher demographics such as teacher qualification, professional development

training programs they have taken related to CGIs and their teaching experience in the study are considered predictive variables and included in Table 4.1. Based on the data presented in the table, it can be seen that the academic qualifications of most of the Geography teachers (79%) are a Bachelor of Arts in Geography and Environmental Studies. The remaining 21 percent are holders of an MA in Geography and Environmental Studies. This indicates that geography teachers have relevant academic training.

With regard to the professional development training programs related to CGIs that Geography teachers have undergone, the responses from the teachers show that the training of the teachers is not standard. While 40% of the teachers said that they have undergone some training programs related to the CGIs, 39% of the other teachers said that they have received adequate training regarding the said topic. On the other hand, 21% of the respondents said that they have not received training related to the topic. This indicates that a significant number of the teachers have not undergone adequate training related to the said topic.

In terms of the number of years of teaching experience of Geography teachers, it was found that the majority of teachers (43%) have 15 to 20 years of experience, while 31% of the other teacher respondents have 21 to 25 years of experience. The rest 26% of teachers have 26 to 30 years of experience. This reflects that the majority of teachers are experienced.

Table 4.1: Geography Teachers' Demographic Information

Demographic Information															
Qualification				Training Programs						Years of Teaching Experience					
BA Degree		MA Degree		Not at all		To some extent		Adequately		15-20		21-25		26 & above	
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
57	79	25	21	15	21	29	40	28	39	31	43	22	31	19	26

After the data obtained from the samples of the study, particularly from teacher and student participants, the assumptions of inferential statistics, such as one-sample t-test, repeated measure of ANOVA, Friedman Rank Order Test, and multiple regression, were tested using various methods, as outlined in the following Table 4.2

Table 4.2 Ways of Checking Assumptions for Inferential Statistics

Types of Statistics	Assumptions	Ways of CheckingAssump-tions	Re-mark
One-sample t-test	Independence of observation	Random sampling	Met
	Scale of measurement	Continuous	Met
	Normality	V-shape Histogram	Met
FriedmamRank Order Test	Scale of measurement	Ordinal	Met
	Independent variables should consist of 3 or more related measures	Three measures	Met
	Observations are matched/they should be repeated measures	Repeated measures	Met
	Data can be ranked meaningfully within subjects	can be ranked	Met
	No outlier	Scatter Plot	Met
Repeated measures of ANOVA	Normality of the dependent variable	Skewness,&V-shape histogram	met
	Spehericity	$p < 0.05$(Greenhouse Geissier was used except one case: Grade 10 attitude)	Not met
	Measurement scale	Continuous	Met
	Outliers(no significant outlier)	Scatter plot	Met
Multiple regression Multiple regression	Linearity	Scatter plot	Met
	Homoscedasticity	Plot residuals	Met
	No perfect multicollinarity	Calculating VIF(1-4)	Met
	Normality of residuals	V-shape Histogram Normal Q–Q plot Shapiro-Wilk Test(P<0.05)	Met

4.2 Integration of Contemporary Geographic Issues in the Textbooks

In this section, data obtained from document analysis and in-depth interviews were analyzed using quantitative and qualitative data analysis techniques. The analysis mainly focused on the extent to which the CGIs are integrated in the textbooks compared to other topics found in the textbooks, the extent to which the content items, learning objectives and instructional activities of each CGI are integrated in the textbook, and how well these components of CGIs are integrated. That is, whether these elements of integration are presented in the way they enhance students' knowledge, skills, attitudes and participations of CGIs. To do this, the principles and recommendations given by the United Nations Conferences held at different places and times were used as a framework for assessing the integration of these components of CGIs in Geography textbooks. The investigator also used the local guidelines and principles of integrating environmental issues into school curricula developed by the Ethiopian Environment, Forest, and Climate Change Commission (EFCCC, 2020), and the Ethiopian Education Sector Development Program VI (ESDP VI) developed in 2021(MoE, 2021). All these documents suggest that when current environmental issues/problems are integrated in the school curricula, the prevalent CGIs, the content sections, learning objectives, and instructional activities under each CGI should be incorporated adequately, and in a way to develop the students' knowledge, attitudes, problem-solving skills, and participation in the issues. Thus, the integration of these components of CGIs in Grade 9 and Grade 10 textbooks was examined and presented below.

4.2.1 Integration of Prevalent Contemporary Geographic Issues in the Textbooks

The data collected from the textbooks analysis show that the Grade 9 and Grade 10 Geography textbooks embrace CGIs that are context-relevant at both the local and global levels. In the Grade 9 textbook, different types of CGIs are integrated. These include population growth, environmental pollution, environmental degradation, deforestation, and soil erosion. On the other hand, the Grade 10 Geography textbook embraces CGIs such as climate change, population growth, unplanned urbanization, and environmental pollution. Despite the adoption of the most dominant CGIs in the two textbooks, it can be noted from the analysis that the percentage of CGIs included in relation to the overall content items located in the textbooks is very low. As

indicated in Table 4.3, only 16 or 7.2% of the 275 items in the Grade 9 textbook refer to the CGIs, while the other 92.8% contain items other than geographic content items.

Table 4.2: Types of Contemporary Geographic Issues Integrated in Grades 9 and 10 Geography Textbooks

Grade level	Total Content Items in the textbooks		Content Items other than CGIs		Content Items related to CGIs	
	No.	%	No.	%	No.	%
9	275	100	259	92.8	16	7.2
10	144	100	132	91.7	12	8.33

Likewise, in the Grade 10 Geography textbook, only 12 or 8.33% of the 144 content items refer to the CGIs. The results emanating from the document analysis undertaken on the Grades 9 and 10 Geography textbooks entail that, despite the two textbooks featuring CGIs which are common both locally and globally, the amount of content placed on these issues is relatively low. The impression is that CGIs receive very little coverage against the backdrop of the existing problem, as well as the development of CGIs locally and globally.

4.2.2 Content Items Incorporated Under Each Type of Contemporary Geographic Issues

Beyond the limited integration of CGIs in the Grade 9 and 10 Geography textbooks, the way these issues are presented is pedagogically ineffective. In most cases, the content items of each CGI are presented in a shallow manner, typically through definitions of CGIs, brief explanations of causes and consequences, and possible solutions. For instance, as indicated in the Grade 9 Geography textbook, the topic of "environmental degradation*"* includes only two content items: the causes and consequences of environmental degradation (p. 111), but it omits critical components of land degradation, such as the nature and comprehensive mitigation strategies. This limited approach restricts students' ability to develop a deep understanding of the issue and to engage meaningfully with real-world environmental challenges.

Table 4.4: Content Items Integrated in Grade 9 Geography Textbook

Types of CGIs	Pages	Content Items Related to CGIs	Frequency	Rank
Population growth	89, 164, 165	Definitions	1	4
		Trends	7	2
		Consequences	32	1
		Solutions	5	3
Environmental Degradation	111	Causes	4	1
		Effects	4	1
Environmental pollution	114, 161, 172	Definitions	5	2
		Causes	15	1
		Consequences	2	3
Deforestation	169, 170	Definitions	2	4
		Causes	9	2
		Consequences	14	1
		Solutions	6	3
Soil Erosion	174, 175, 176	Definitions	1	4
		Causes	21	1
		Consequences	9	3
		Solutions	11	2

As indicated in Table 4.4, the definitions of environmental pollution are stated multiple times (5 times). Its causes and consequences are also repeatedly stated (15 and 2 times, respectively). By contrast, other CGIs, for example, "deforestation" and "soil erosion," are explained more profoundly. Under the topic "deforestation", its definitions, causes, consequences, and solutions have been accounted for 2, 9, 14, and 16 times, respectively, throughout the textbook (p. 180-185). Similarly, under the topic "soil erosion", the textbook covers various content items, such as its definition, causes, impacts, and solutions, which have been accounted for 1, 21, 9, and 11 times, respectively. Likewise, detailed elaboration is found on the definitions, causes, results, and solutions of soil erosion that would enrich students' learning and understanding about the topic (p.174-176).

However, the findings of the data collected through the analysis of the documents show that the content sections covered in each of the CGIs are not dealt with in a way to encourage the student

to develop their attitudes, problem-solving abilities, and engagement in the CGIs. For example, even though the CGIs, such as deforestation and environmental pollution, are thoroughly dealt with in the Grade 9 textbook, there are very few statements or examples, such as tree-planting and disposing of rubbish, in the textbook used to develop students' positive environmental values. Even in content items related to the causes and consequences, as well as the solutions of each of the CGIs, there are very few examples, case studies, and personal experiences, which can help the students to develop environmental ethics in their minds.

In addition, the way CGIs are presented in the textbook does not promote students' practical skills, such as observation, data collection, and analysis pertaining to problems associated with their environment. The textbook also does not encourage the students to focus on experiential learning techniques such as practical exercises, field studies, scientific experiments, or tasks that entail the design or analysis of a solution to a problem presented by real life.

These results indicate that content items of CGIs integrated in the Grade 9 Geography textbook mainly focus on shaping the students' intellectual understanding of CGIs, such as population growth, deterioration of the environment, environmental pollution, deforestation, and soil erosion. The content items mainly emphasize the definitions, causes, consequences, and solutions. However, they do not give much concern for shaping the students' attitudes, skills, and pro-environmental behaviors. This implies that the textbook prepares students mainly for a superficial understanding of the current geographic problems, rather than for solving environmental problems and developing the necessary skills of analyzing environmental issues. This, on the other hand, affects the learners' proactive and informed roles in solving environmental problems.

The data obtained through in-depth interviews further reveal that the textbook does not present CGI-related content items in a way that enhances students' knowledge, attitudes, skills and participation in a balanced way. Most respondents responded that the textbook places a strong emphasis on building students' knowledge and understanding, particularly in distinguishing the definitions, causes, consequences, and possible solutions of the CGIs included in the textbook. For example, when students were asked how the integration of CGIs in their textbook affected their attitudes toward these issues, their responses varied. Two students reported that their attitudes toward CGIs had changed, leading them to become more sensitive to certain topics. In

light of this, Student 2 stated, "…. yes, I have read the textbook in detail, so I feel that I have developed my knowledge and attitude of contemporary geographic issues. Thus, I can participate in protecting problems related to CGIs." Student 4 also states, "The content of the contemporary geographic issues in the textbook is presented in detail, and clearly, so I have developed my knowledge, attitude, and skills of each of the issues."

In contrast, the other four students indicated that they did not feel they had brought attitudinal change and skills used to address problems associated with CGIs integrated in the textbook, although they acknowledged that they gained knowledge about CGIs. They felt that the textbook could not enhance their attitude and skills in solving problems related to CGIs. In light of this, Student 3 remarked, "Although I have gained good knowledge on different contemporary geographic issues such as soil erosion, population growth, and deforestation, I cannot say that I have developed my attitudes regarding problems related to CGIs and skills of solving problems related to CGIs." Student 5 added, "The textbook does not present the contents of CGIs in the way they enhance our skills and participation in solving problems related to CGIs. It fails to address the specific challenges different countries face concerning each issue, how they are attempting to resolve these problems, and what may happen in the future if these issues remain unaddressed."

Student 6 also articulated this sentiment in the following way:

> The contemporary geographic issues integrated in our textbook are easy to understand, as we started to learn them at a lower grade level and got some information about the issues from different media, like TV. Some agricultural experts who work in our local area also informed us about the causes, consequences, and solutions of these issues. Therefore, when I read a topic/content related to these issues, I can easily understand what it means, its causes, consequences, and solutions. However, I feel that I have not acquired adequate attitude and skills to solve problems related to these issues.

From the verbatim of Students 3, 5, and 6, it is possible to infer that while the students find the CGIs integrated in the textbook are accessible and understandable because of their prior exposure to them in earlier grades, they underscore the critical shortfall of the textbook in students' attitude and skill development, the textbook is limited in preparing them for developing their attitudes and skills used to solve the challenges of environmental problems.

All of the Grade 9 Geography teachers also acknowledged that the Grade 9 Geography textbook includes CGIs that are prevalent at both global and local levels. However, their views differed in the way the content items of CGIs are integrated into the textbook. While three teachers believed that each CGI was integrated effectively, the remaining three teachers felt that the way the content items were integrated was inadequate. The first three groups of teachers emphasized that the textbook covers the most pressing CGIs at both global and local scales. They also noted that, for each issue, the textbook provides content items that support the development of students' knowledge, skills, and attitudes so that students are well-equipped to understand and address problems related to CGIs in their communities. For example, Teacher 1 reflected, "I feel that the Grade 9 Geography textbook incorporated different types of contemporary geographic issues such as population growth, land degradation, soil erosion, and others. Thus, I feel that I can get good knowledge, skills, and attitudes about the issues." Teacher 3 also states, "In my view, the Grade 9 Geography textbook incorporates the most common CGIs, which are the world's concern. Therefore, I feel that it is an important material used to develop students' knowledge, skills, and attitudes towards each CGI." Teacher 4 also has the same view.

The positive perspectives of these Geography teachers regarding the integration of CGIs in the Grade 9 Geography textbook imply that the textbook can play a significant role in shaping students' literacy of CGIs, as it addresses both global and local CGIs and presents them in a way that fosters students' cognitive understanding, practical skills, and attitudinal development.

On the other hand, the remaining three Geography teachers acknowledged that while the textbook integrates the most prevalent CGIs at the local and global levels, it overlooks several critical components necessary for comprehensive learning of CGIs. Despite this, these teachers felt that the textbook fails to present the content items of CGIs in a way that actively promotes the development of students' attitudes, practical skills, and participation in addressing real-world problems. For example, Teacher 2 states it like this. "The textbook does not incorporate different strategies that can help the learners develop a strong sense of responsibility for CGIs occurring at the local level." In the same vein, Teacher 6 states, "The textbook mainly focuses on concepts related to different contemporary geographic issues used to develop students' knowledge, but it covers very few contents that highlight how students develop their skills of solving environmental problems." From the response of these groups of teachers, it is inferred

that the Grade 9 Geography textbook has a significant shortcoming in enhancing students' attitudes and problem-solving skills of CGIs, while it successfully integrates the most prevalent CGIs that help students understand the meanings, causes, consequences, and solutions of CGIs.

From quantitative and qualitative data findings, it can be concluded that even though the integration of CGIs within the textbook enables students to gain knowledge, it does not suffice to bring about the required attitude and behaviors necessary to effectively solve problems related to CGIs. This is because the textbook does not provide the content items in a manner that enables students to achieve ethical understanding about the use, conservation, and protection required within problems associated with the CGIs, nor does it include effective aesthetic features to enable students to relate textbook content to real-life experiences, such as observation, participation, appreciation, and practice.

Table 4.5: Content Items of CGIs Integrated in the Grade 10 Geography Textbook

Types of CGIs	Pages	Related concepts integrated	Frequency	Rank
Climate change	44	Definitions	1	3
		Causes	3	2
		consequences	25	1
Population growth	146	Definitions of related concepts	1	4
		Causes	2	3
		Consequences	8	1
		Solutions	5	2
Unplanned urbanization	161	Definition	1	3
		Causes	5	2
		Consequences	6	1
Coastal pollution	168	Definitions	0	4
		Causes	13	1
		Consequences	3	3
		Solutions	11	2

As displayed in Table 4.5, the Grade 10 Geography textbook embraces various CGIs that are common at local and international levels. These CGIs include climate change, population growth, unplanned urbanization, and coastal pollution. For every CGI, the textbook outlines the

definition, causes, consequences, and solutions of those CGIs. For instance, for the CGI "climate change," the grade 10 Geography textbook outlines one definition, three causes, and twenty-five consequences of climate change (p. 44). For the CGI "population growth," two definitions, eight causes, and six consequences of population growth are incorporated (p. 146). The last CGI included in the Geography textbook is "coastal pollution". Under this topic, thirteen causes, three consequences, and eleven solutions were incorporated (p. 168-169).

As indicated in the table, the Grade 10 Geography textbook integrated global and local CGIs that enhance students' factual and theoretical knowledge of CGIs. However, these issues are presented with limited emphasis on developing students' attitudes, skills of solving problems of CGIs, and participation in solving environmental problems. For instance, climate change is not presented through case studies, scientific data, or real-life examples showing its regional and global impacts. This lack of contextualizing the issues limits students' understanding of the urgency of the issue, and fails to foster students' environmental responsibility and active engagement in sustainable practices of solving problems of CGIs. Similarly, while population growth is illustrated using population pyramids, the absence of case studies, such as rapid demographic changes in sub-Saharan Africa, and the exclusion of real-life scenarios hinder students' ability to analyze the complex occurrence of CGIs.

In addition, issues such as unplanned urbanization and coastal pollution are presented in an abstract manner without using examples or scenarios that will generate concern, empathy, and responsibility among the learners towards the issue. Such ways of presentation cannot make the learners develop problem-solving, teamwork, and leadership skills.

The implication here is that although the Grade 10 Geography textbook includes essential topics in the CGIs, namely climate change, population increase, unplanned urbanization, and coastal pollution, it focuses on fragmentary facts. The textbook focuses on the general definitions, causes, consequences, and solutions of the issues. However, it seems that the textbook neglects the aspect of improving the attitudes, values, and problem-solving capabilities of the learners. More importantly, the textbook does not provide the CGIs by relating to local and current environmental issues. The learners are, therefore, not equipped with the skills of being proactive in the fight against the challenges of the CGIs.

The data obtained from interviewed students and those of Grade 10 Geography teachers also indicated that CGIs integrated into the textbook are both timely and relevant as they impact the environment at both local and global levels. For example, the students reported that they have gained a good understanding of the CGIs covered in the textbook. However, students' responses varied when asked if they had developed a positive attitude towards these issues. Two students reported that they had developed a positive attitude and become more sensitive to addressing problems related to each issue. For example, Student 2 said, "Because of the topics presented in the textbook, I have gained good knowledge about the causes, consequences, and solutions of these issues. This knowledge, in turn, makes me more conscious of problems related to such issues so that I can react to these problems." Student 5 also noted, "I feel very concerned about problems such as climate change, population growth, and environmental pollution as they are major challenges in Ethiopia."

Conversely, the other four participants felt that, although the issues integrated into the textbook enhance their knowledge and understanding of the issues and their impact on the environment, the textbook does not sufficiently address elements that would enhance their skills, attitudes, and participation in solving problems of CGIs. They reported that when the content items, such as causes, consequences, and solutions of each CGI, are presented, they are not presented with real examples or real-life situations that could inspire the students to engage more actively with CGIs. In light of this, Student 1 states:

> I know that climate change, population growth, unplanned urbanization, and coastal pollution are the most common issues affecting the world in different ways. Much emphasis is given by different stakeholders to solve these problems. We have also learned more about these issues in lower grades in some subjects, but I have not yet seen any changes in minimizing the effects of these issues on the environment and human beings.

Likewise, Student 4 says, "I am very aware of the different types of current environmental problems integrated in our Geography textbook. Thus, I can read and understand them easily as I have learned them repeatedly since the lower grades. However, I feel that I have not developed a skill used to solve environmental problems. Even I am not very sensitive to the environmental issues."

As indicated by the respondents' responses, Grade 10 students have perceived the way CGIs are integrated within the Geography textbook in different ways. Of the six interviewees, two perceive that the textbook integrates CGIs in a good manner, and this integration exposes them to a positive influence on their attitudes and skills regarding solving CGI-related problems. Consequently, they are concerned and have a good willingness to engage with CGIs affecting their local areas. Conversely, the information gathered from the remaining four students reveals that there is a shortcoming in the way CGI is integrated into the textbook. They stated that although the textbook increases their knowledge and understanding of CGIs, it does not increase their skills, attitudes, and motives required to take an active role in problem-solving.

The interview data obtained from Grade 10 Geography teachers also showed that the CGIs integrated in the Grade 10 Geography textbook are the most prevalent ones and significant concerns at both global and local levels. They noted that including these issues in the textbook helps students understand the causes, consequences, and solutions of each issue so that these issues make education more relevant to the world they live in. However, all teachers claimed that the way CGIs are presented in the textbook does develop students' attitudes, skills, and participation in addressing these problems. For example, Teacher 1 said:

> The contemporary geographic issues integrated in the Grade 10 Geography textbook are more prevalent. They give an adequate explanation about the nature, causes, and consequences of each issue. As a result, students can have good knowledge about the issue. On the other hand, the textbook does not enhance students' problem-solving skills and sensitivity to problems related to contemporary geographic issues.

In the same vein, Teacher 2 stated:

> I have read the Grade 10 Geography textbook in detail. It includes contemporary geographic issues that are relevant at the global and local levels. For example, climate change is the most sensitive issue in today's world. It is included in the textbook so that students can gain good knowledge about the causes, consequences, and solutions of contemporary geographic issues. However, these contents of CGIs are not presented in a manner to enhance students' problem-solving skills.

In general, it is observed that the Grade 10 Geography textbook covers some key CGIs that are prevalent at both local and global levels, and the textbook gives a high concentration on the causes, consequences, and solutions of CGIs. However, the textbook gives little value to prob-

lem-solving capabilities, attitudes, and student action towards CGI issues. This reveals that a significant emphasis is placed by the textbook solely on cognition

4.2.3 Integration of Learning Objectives in the Textbooks

Designing and incorporating appropriate learning objectives is a critical component of curriculum development and instructional planning. Well-designed learning objectives significantly enhance the quality and effectiveness of teaching and learning by providing a clear framework for instruction. They guide teachers in the selection, organization, and presentation of content, ensuring that materials are purposeful and aligned with intended outcomes. More importantly, learning objectives are essential for creating structured, coherent, and outcome-based educational experiences that primarily focus on enhancing students' knowledge, attitudes, skills, and participation on a particular issue. Thus, they are considered a foundation for instructional delivery and the use of appropriate assessment techniques. Given their importance, it is believed that curriculum developers and textbook authors should incorporate adequate, clear, relevant, and sufficient learning objectives that give equal emphasis to knowledge, attitude, and skill development in students on particular topics. Thus, the extent and the way learning objectives of CGIs are integrated in the Grade 9 and 10 Geography textbooks were assessed and presented below.

Table 4. 6: Objectives Developed in Grade 9 and 10 Geography Student Textbooks

Grade level	TO				Objectives of CGIs		CGIs Objectives Developed in the Total Objectives					
							Knowledge		Attitudes		Skills	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
9	79	100	65	82.28	14	17.72	11	78.57	1	7.14	2	14.29
10	38	100	32	84.2	6	15.8	4	66.66	1	16.67	1	16.67

As noted in Table 4.6, the Grade 9 Geography textbook incorporates a total of 79 learning objectives. Of these, only 14 objectives (17.7%) are focused on CGIs. Of these CGI-related objectives, a high percentage (78.57%) is allocated for the knowledge dimension. By contrast, objectives intended to develop students' attitude and skills are accounted for only 7.14% and 14.29%,

respectively. This textbook also ignores objectives that enhance students' participation in solving environmental problems. This indicates that minimal attention was given to both the affective and psychomotor domains.

Similarly, in the Grade 10 Geography textbook, much attention is for objectives dealing with enhancing students' understanding of CGIs rather than focusing on objectives that enhance students' attitudes, skills and participation. Of the total objectives that focus on CGIs, only 16.67% and 16.67% objectives aimed at promoting students' attitudes and skills, respectively. However, the majority of the objectives (66.66%) concentrate on enhancing the cognitive understanding of students about CGIs. This implies that the textbook lacks the inclusion of learning outcomes that make students become more concerned and actively engage in solving problems caused by CGIs. The textbook also lacks the inclusion of learning outcomes that make students actively engage in solving problems caused by CGIs.

As the findings of the document analysis indicated, both Grade 9 and 10 Geography textbooks incorporate some objectives related to CGIs. From these objectives, most of them focus on cognitive objectives that enhance students' knowledge of CGIs. However, the textbook fails to incorporate learning outcomes that explicitly promote students' attitudes, problem-solving skills and active participation in solving environmental problems.

Furthermore, data gathered from Grade 9 and Grade 10 Geography teachers provide valuable insights into the adequacy, relevance, and limitations of the learning objectives stated in the textbooks. The teachers indicated that, although the objectives integrated into the textbooks are generally well-formulated, they primarily emphasize students' cognitive understanding of CGIs. However, the textbooks give insufficient attention to developing problem-solving skills, promoting attitudinal change, and their participation regarding CGIs, as stated in the textbooks. For example, Teacher 1, who has taught Geography in Grade 9, stated: "The textbook contains very clear and specific objectives. However, the objectives mainly focus on students' understanding of the CGIs." In the same vein, Teacher 6 states the following about the grade 10 Geography textbook. "I enjoy the objectives designed in the textbooks, but in my view, it seems that skill and attitude objectives are ignored." Other teachers also have similar ideas, though their expression varies.

From the results of the quantitative and qualitative data, one can infer that the instructional objectives integrated into the Grade 9 and 10 Geography textbooks do not adequately address the instructional objectives. The textbooks do not address the intended learning outcomes of CGIs, such as knowledge, attitudes, skills, and participation, equally. In comparison with the scale and urgency of CGI-related challenges at both local and global levels, it is realized that the textbooks place little emphasis on objectives that foster students' practical problem-solving skills, environmental concerns, and participation in CGIs. Rather, an overemphasis is given on cognitive knowledge at the expense of the affective and psychomotor domains. Such an imbalance implies that there is a hampering of the development of students' critical thinking and problem-solving abilities, values, and sense of responsibility regarding CGIs. Furthermore, the underrepresentation of skill-oriented objectives limits the potential for action-based learning, which is critical in preparing students to meet real-world environmental challenges. This calls for a reassessment of textbooks so that students are adequately informed about the contemporary geographic challenges we face.

4.2.4 Integration of Instructional Activities in the Textbooks

When instructional activities are integrated effectively, they can enhance CGI education of the younger generations by linking academic content with real-world issues. They also foster students' knowledge, attitudes, and skills related to CGIs. Accordingly, the Grade 9 and Grade 10 Geography textbooks were examined to determine the extent and the way in which CGIs are integrated into Geography lessons. As the data obtained from a document analysis indicated, the Grade 9 Geography textbook included a variety of learning activities. The textbook featured 50 general activities. Within these activities, a total of 140 specific activities were incorporated. As shown in Table 4.7, of 140 specific activities, 41 activities (29.3%) are related to CGIs. Compared to the number of CGIs integrated in the textbook, the results indicated that the textbook addresses adequate learning activities.

Table 4:7 Instructional Activities Developed in Grade 9 and 10 Geography Textbook

Grade Level	General Activities		Specific Activities		Specific Activities other than CGIs		Specific Activities Related to CGIs		Specific Activities Focused on Each Learning Objective of CGIs					
9	No	%	No.	%	No.	%	No.	%	Knowledge		Attitudes		Skills	
									No.	%	No.	%	No.	%
	50	100	140	100	99	70.7	41	29.3	34	82.92	4	9.76	3	7.32
10	51	100	93	100	73	73.3	26	27.7	17	65.38	6	23.10	3	11.52

As indicated in Table 4.7, it was observed that 41 specific activities related to CGIs are incorporated in the Grade 9 Geography textbook. To explore in which specific learning outcomes each activity focuses, the investigator examined the activities and categorized them into four areas: activities designed to enhance students' knowledge, attitudes, skills, and participation in CGIs. Thus, from the 41 activities, most of the activities (82.92%) aimed to assess students' comprehension of the CGIs. These activities ask students to recognize and gain a deeper and more comprehensive understanding of the meanings, causes, consequences, and solutions of the CGIs stated in the textbook. On the other hand, a few of the activities aimed at enhancing students' attitudes toward CGIs and developing their problem-solving skills related to these issues. As indicated in Table 4.7, only 4 activities (9.76%) focused on enhancing students' attitudes toward CGIs, while 3 activities (7.32%) were designed to develop students' skills for solving problems associated with CGIs. However, there are no activities that enhance students' participation in protecting the problems of our environment.

The results of the document analysis highlight that although the textbook consisted of a fairly adequate number of activities connected to the CGIs, the vast majority of these activities merely pertain to knowledge and comprehension. Very few of these activities are designed to facilitate the development of attitudes, problem-solving skills and participation in solving environmental problems. This implies that the students may be well-informed regarding the CGIs, but they

may not possess the positive attitude and ability to effectively and meaningfully deal with these issues.

Grade 9 students were also asked whether the activities included in their textbooks equally support the development of knowledge, skills, attitudes, and participation related to CGIs. In light of this, of the six students, one student felt that the textbook provides activities in a balanced approach to fostering all of the learning objectives of CGIs. In his verbatim expressions, Student 2 states, "… in my view, the activities in the textbook are written in a good way. They ask what we have learned and develop our skill of solving problems related to contemporary geographic issues."

On the other hand, the other five students noted that although the learning activities create a supportive environment that enhances their comprehension and retention of each CGI, most of the textbook activities do not encourage students to actively engage in developing their environmental attitudes and practical skills for addressing environmental issues. For instance, Student 3 reported the following. "For me, I have done a lot of activities in the geography textbook. However, most of the activities, as I remember, focus on recalling what we have learned. Only a few of the activities help us to develop our attitudes and skills towards each CGI, and there are no activities used to enhance our participation in CGIs."

Student 4 also added the following. "Most of the activities I observed in the textbook make me recall the definitions, causes, and consequences of each issue. The textbook rarely encourages me to participate in solving problems related to CGIs." With slight differences from Students 3 and 4, Student 5 stated that the textbook includes activities that enhance his knowledge, skills, and attitudes. However, he noted that these activities place greater emphasis on developing knowledge about CGIs, particularly their meanings, causes, consequences, and possible solutions. In support of this, his verbatim response is as follows. "Grade 9 geography textbook contains activities that enhance students' knowledge, attitude, and skills of CGIs. However, the activities give more emphasis to developing our knowledge of CGIs."

Student 6 was also asked if the activities prompted him to participate in problem-solving activities. He feels that most of the activities are unable to solve specific local contemporary geographic issues that affect her environment. In light of this, he states, "I do many activities that

enhance my knowledge and understanding of the meanings, causes, and consequences of CGIs, but my skills of problem solving are not well developed."

The teachers also noted that most of the activities designed in the textbook primarily focus on enhancing students' cognitive knowledge. However, only a few questions encourage students to engage in hands-on experiences. They feel that the textbook missed such types of questions that are essential for establishing a direct connection with CGIs, enhancing problem-solving skills, and empowering students to take action on problems occurring in their local areas. Moreover, teachers reported that the questions designed in the textbook do not effectively develop students' attitudes toward CGIs. They felt that most of the activities in the textbook failed to motivate students to engage with environmental problems, foster a sense of responsibility for protecting the environment, and contribute to an appreciation, care, and concern for it. For example, Teacher 1 expressed this concern by stating:

> A positive attitude towards the environment will play a significant role in the conservation of the environment. Without a positive attitude, it will not be possible for anyone to tackle these problems. Therefore, the activities required in the students' textbook need to include the development of positive attitudes towards the conservation of the environment for students to become sensitive to all the problems that relate to the environment and may be part of the solutions to these problems.

In the same vein, Teacher 3 echoed these sentiments, emphasizing the importance of fostering a proactive mindset in students like this:

> Of course, the textbook incorporates many activities that enhance students' knowledge of the issues, but the activities are not balanced. For example, there are a few activities that enhance students' attitudes towards the contemporary issues occurring at the local or global level. Therefore, it is necessary to add activities used to develop affective and behavioral skills of the learners so that the students can engage in solving problems related to a particular CGI.

From the above two quotes, it is possible to infer that the activities included in the textbook have some flaws. They are mainly geared towards developing students' cognitive knowledge of CGIs, particularly on the definitions, causes, consequences n solutions of the CGIs. The textbook lacks activities such as field trips, environmental projects, and inquiry activities, which enhance students' problem-solving skills. Lack of such activities also hinders students' devel-

opment of attitudes, values, and emotional engagements towards CGIs. This indicates that students' long-lasting sense of environmental stewardship may not be achieved.

As indicated in Table 4.7, the Grade 10 Geography textbook also incorporated a variety of learning activities aimed at engaging students in different tasks. The textbook features a total of 53 general activities, and under these activities, there are about 93 specific activities. However, many of these activities focus on topics other than CGIs. Of the 93 specific activities, only 26 (27.7%) are related to CGIs. Even from 26 specific activities, most of them (65.4%) primarily focus on retrieving factual information of CGIs, such as definitions, causes, consequences, and occasionally solutions of climate change, population growth, unplanned urbanization, and coastal pollution. That is, they serve as a tool for assessing students' understanding of the meanings, causes, consequences, and solutions of each issue.

However, there are only a few activities used to enhance students' attitudes, skills, and participation on CGIs. That is, the activities integrated in the Grade 10 Geography textbook do not promote a holistic approach to learning about CGIs. While they primarily enhance students' conceptual understanding, particularly regarding the definitions, causes, consequences, and potential solutions of each issue, they fall short in fostering positive attitudes such as care, concern, and a sense of responsibility toward these problems. Furthermore, the activities do not effectively develop essential practical skills like critical thinking, collaboration, and problem-solving. In addition, only one activity is aligned with the learning objective of enhancing students' participation. For instance, in the Grade 10 Geography textbook, under the topic *Population Growth*, only the activity that says "What do you think is your personal role in reducing environmental pollution (including rivers and lakes)?" is used to enhance students' participation in protecting the environment from pollution. This implies that the students are less likely to become active, informed participants in addressing CGIs. The findings also imply that the textbook lacks real-life, experiential learning opportunities that would enable students to analyze the causes, impacts, and solutions of pressing issues such as climate change, population growth, and unplanned urbanization.

The statistical findings clearly showed that there is a significant gap in the way activities related to CGIs are addressed in the textbook, as the textbook fails to include activities that may prepare skillful, sensitive, and responsible citizens for solving problems related to CGIs.

The data gathered from the in-depth interviews also shows that most of the activities developed in the Grade 10 Geography textbook are related to improving students' understanding of CGIs. However, activities that aim to develop students' problem-solving skills, attitudes, and participation towards CGI are least likely to be found in their textbooks.

For example, Student 1 states:

> The activities designed in the textbook help me recall what I have learned in class. When I discuss using these activities with my classmates, I also retrieve facts related to CGIs and share knowledge on concepts related to CGIs. They are mainly used to understand concepts related to CGIs, their causes, consequences, and solutions. However, the number of activities used to develop our skills and participation in solving problems related to CGIs is very small.

Student 3 also criticized the activities found in the textbook as follows. “Most of the activities encourage us to have good knowledge about the CGIs and how severe they are at the global and local levels.”

More importantly, Student 5 stated the following.

> The activities found in this textbook do not encourage us to participate or share experiences on problems related to our environment. For example, the activities do not encourage engagement in practical activities used to solve problems related to climate change. They do not encourage us to do projects or assignments on a particular CGI. Even they do not push us to use different forms of information, such as news, the Internet, Television, and others, about current environmental problems.

The above quotations indicate that although the textbook incorporates different types of learning activities, it is not effective in providing skills and attitudes fundamental to participating meaningfully in CGIs. This implies that the textbook requires activities used to enhance students ‘skills and values of the current environmental issues.

The data collected from the Geography teachers showed that the activities included in the students' textbook do not cater to the learning outcomes of integrating CGIs in the curriculum content. The textbook mainly encompasses activities used to enhance students’ knowledge, giving less emphasis on activities used to enhance students’ attitude, skills, and participation. For example, Teacher 1 stated:

> The activities related to CGIs integrated in geography textbooks should focus to develop students' knowledge, skills, attitudes and participations on the environment. By contrast, as I have observed the Grade 10 Geography textbook, most of the activities focus on enhancing students' knowledge of CGIs, particularly on the definitions, causes, consequences and some mitigation strategies of CGIs. Thus, future curriculum developers need to consider these issues."

Teacher 3 similarly states, "The activities found in the Grade 10 Geography textbook do not encourage the learners to develop environmental concerns and solve environmental problems. They mainly focus on enhancing students' knowledge and awareness of the issues." Teachers 2, 4, 5, and 6 also have almost the same views. They feel that the activities need to be more focused on developing students' attitudes and problem-solving skills related to CGIs.

In conclusion, the data obtained from document analysis and key informant interviews indicate that the integration of activities/questions that enhance students' attitudes and skills related to each CGI in both Grade 9 and 10 Geography textbooks is inadequate. Most of the activities in the textbooks focus on enhancing students' knowledge and understanding of the nature, causes, consequences, and sometimes solutions of CGIs. However, limited emphasis is given to integrating activities aimed at developing students' attitudes, and problem-solving skills on problems related to CGIs. This implies that the students do not achieve the expected learning outcomes of CGIs, particularly developing their attitudes, problem-solving skills related to CGIs, and participation.

4.3 Integration of Contemporary Geographic Issues in the Classroom

For assessing the level at which CGIs are being integrated in the Geography classes, some key aspects that are considered to be indicators of integration of CGIs in classes were considered. These include the level to which Geography teachers are incorporating all four aspects of CGIs(knowledge, skills, attitudes, and participation in CGIs) in classes, and teachers' use of appropriate teaching methods and a variety of information sources during the integration process.

4.3.1 Integration of the Components of Contemporary Geographic Issue Literacy

To examine the levels of integration exhibited by Geography teachers towards the components of CGIs in Geography classroom practices, means and standard deviation were used. In addition, to identify a significant difference between the expected and actual mean regarding the integration process towards the components of the CGIs within the classrooms, a one-sample t-test analysis was used. While the expected average value is the theoretically assumed value by the researcher regarding the integration process exhibited by the teachers towards the components of the CGIs, with a score average value set to 3, the observed (actual mean) represents the value calculated from the study's sample data.

Table 4.8: Integration of Contemporary Geographic Issue Literacy Components

Literacy of CGIs	No.	t	df	Sig.	Mean	SD	95%confidence Interval	
							Lower	Upper
knowledge	72	35.6	71	.000	4.06	.25	.99	1.11
Skills	72	.342	71	.733	2.99	.29	-.079	.056
Attitude	72	.27	71	.000	2.27	.22	.79	. 68
Participation	72	18.34	71	.000	2.32		.75	.60
Grand mean					2.91			

As depicted in Table 4.8, the Grand mean(2.91) shows that the overall teachers' levels of integration of CGIs geared towards improving students' literacy of CGIs were slightly lower than the expected mean(3). This finding shows that there is a shortcoming of the Geography teachers in incorporating CGIs into their teaching practices. This, in turn, implies that there is a need to train Geography teachers on how CGIs are integrated into their classroom lessons.

Among the elements of CGI literacy infused in the Geography lessons, the highest emphasis given by teachers was to enhance students' knowledge and understanding of CGI. The larger

mean score(4.06) proved this. The one-sample t-test results also showed that there was a significant difference between the expected and observed mean score for infusion in knowledge-related elements(t = 35.6, df = 71, $p < 0.001$). It means the Geography teachers have made more contributions to enhance students' knowledge about CGIs, particularly by addressing the issues in detail, and explaining the causes, consequences, and possible solutions of CGIs stated in the textbook.

By contrast, it was found that geography teachers' levels of integrating CGIs used to develop students' problem-solving skills of our current environmental problems were below average(M = 2.99) or below the expected mean of 3. The one-sample t-test result also reveals that there was no statistically significant mean difference between the observed mean and the expected mean (t = .342, df = 71, and $p > 0.05$). This result indicates that although geography teachers do not sufficiently integrate CGIs in a way to develop problem-solving skills into classroom instruction, they have made some effort to enhance students' abilities to address CGI-related problems.

Classroom observation data also revealed that when Geography teachers taught topics of CGIs and related content items, they presented them in a way to develop students' knowledge of CGIs. However, the way Geography teachers presented CGIs to enhance students' problem-solving skills related to various types of CGIs, such as soil erosion, deforestation, environmental degradation, population growth, unplanned urbanization, climate change, and environmental pollution, was low. It was observed that Geography teachers only sometimes encouraged students to analyze the causes, consequences and solutions of CGIs occurred in their local areas challenged them to apply their knowledge and skills to address local CGIs, raised awareness of their responsibilities in solving such problems, promoted continued learning about CGIs beyond the classroom, integrated local and global CGIs into lesson content, and engaged students in meaningful problem-solving activities. Moreover, it was observed that Geography teachers did not present each CGI in a manner of developing students' decision-making abilities, which helps students understand, analyze, and propose solutions to real-world environmental problems.

More importantly, the data from classroom observation showed that teachers did not encourage students to relate CGIs to real-life situations or local contexts. Out of 12 observed teachers, only five encouraged the students to relate the CGIs stated in the textbooks to their local and current environmental problems. Even these teachers did this sometimes. For example, when Teacher 3

taught population growth and environmental degradation in Grade 9, he engaged his students in classroom discussions on some of the real problems that have resulted from population growth and land degradation in their locality. In addition, when this teacher taught about environmental pollution to his students, he made the students into groups and had them discuss whether pollution is a common problem in their locality and the solutions they and/local community made to protect the pollution. Teacher 4 and Teacher 6 in Grade 9 also related the daily lesson to the students' real-life experience when they taught about deforestation. They made the students discuss whether deforestation is a problem in their locality and what measures the community took to solve this problem.

In addition, only two of the aforementioned teachers, Teacher 3 and Teacher 6, attempted to incorporate soil erosion in a manner that encourages the problem-solving capabilities of students. For instance, Teacher 3 divided students into groups and asked them to debate how to prevent soil erosion within their communities. This teacher also encouraged students to identify areas where soil erosion was evident in their local communities and propose viable means of solving those specific problems. This teacher also encouraged students to study real-life problems associated with population increase in local communities, as well as the level of available resources vis-à-vis the number of people in those local communities. Students were then engaged in discussing both positive and negative attributes of population increase at the local level, which is used to promote students' empathy and sense of responsibility towards challenges occasioned by population increase. Moreover, this teacher engaged students in identifying areas considered highlands in their local communities, determining the level of environmental degradation in those specific areas, and identifying the causes, impacts, and potential solutions for that environmental degradation.

Two other Geography teachers in Grade 10 also encouraged learners to debate the issue of population growth, both in the African and Ethiopian context. For instance, Teacher 4 encouraged learners to explore causes, consequences, and probable solutions to rapid population growth in their local areas. The other teacher in this class(Teacher 6) also made the learners reflect on the size of their families and assessed whether the resources they have in their families were sufficient or not. He concluded the lesson by showing the learners how population growth could be balanced with the economic capacity of a country. This, in turn, makes the learners aware of the relationship between population growth and resource use. However, the other

teachers introduce other CGIs by just explaining the facts, such as the nature, causes, consequences, and solutions of each CGI as stated in the textbook.

The mean score (M = 2.3) displayed in Table 4.8 also indicates that teachers' ways of integration of CGIs to enhance students' attitude toward CGIs were low, which falls significantly below the expected mean of 3. The results of the one-sample t-test also confirm that there was a statistically significant difference between the observed and expected mean scores (t = 27.9, df = 71, $p < 0.001$). This shows that geography teachers did not effectively present CGIs in ways that promote students' emotional engagement with CGIs, develop a sense of personal and social responsibility in relation to CGI-related problems, and foster students' care for problems related to each CGI. Furthermore, the findings show that teachers made minimal efforts to integrate strategies that enhance students' emotional sensitivity, such as connecting local, regional, and global CGIs to classroom lessons, relating the impact of each CGI to students' lives, presenting real-life case studies, inviting guest speakers to deliver motivational talks, encouraging students to link issues with their own communities, and promoting positive environmental attitudes.

The classroom observation data also indicated that Geography teachers did not present their lessons aimed at promoting students' attitudes to these issues. For example, most of the observed teachers did not present how a particular community at the local or global level is affected by different CGIs, such as soil erosion, deforestation, or environmental pollution. They did not employ emotional visuals or powerful statistics that show the effects of CGIs on human beings or the ecosystem. For example, both in Grade 9 and 10 Geography textbooks, the textbook provides several tables and graphs that show how population growth is increasing at an alarming rate at the local and global levels (see p.90, 93, 98 in the Grade 9 textbook). However, the teachers rarely used these visual aids to enhance students' emotions, sensitivity, or concerns about population growth, which in turn helps to develop students' reactions to the problems of population growth.

The teachers did not also enhance students' attitude towards CGIs by asking them reflective questions like "What do you feel if their community is affected by one of the CGIs found in the students' textbooks? And what responsibility do you have to prevent the impact of CGIs?" Furthermore, the observation data revealed that geography teachers did not effectively encourage students to take personal responsibility for improving environmental quality in their communi-

ties, either in the present or in the future. When addressing topics such as deforestation, climate change, and soil erosion, teachers rarely prompted students to reflect on how these issues directly or indirectly affect their local environments, or the well-being of their families and communities. In addition, real-life stories that could evoke empathy and deepen students' emotional engagement with CGIs were notably absent. Teachers did not involve students in activities that illustrate how individuals or communities are impacted by environmental degradation. They further failed to link global phenomena, such as climate change and its impacts to their local experiences.

In general, the significantly low mean score, the independent t-test result, and the classroom observation data indicate that geography instruction largely fails to cultivate students' attitudes toward CGIs. This low level of integration reflects that there is a serious gap in teachers ' understanding of how effective learning outcomes, such as empathy, environmental concern, and civic responsibility, are addressed in geography education. This shortfall, in turn, limits students' emotional engagement, moral development, and motivation to take action on problems related to CGIs. This finding has pedagogical implications in that Geography teachers must go beyond simply conveying facts of CGIs. They need to create emotionally engaging, ethically grounded, and participatory learning environments to enhance students' attitudes and skills about CGIs and related problems.

Presenting CGIs in the classroom in a way to inspire students to take meaningful action on problems of CGIs also requires more than simply conveying knowledge of CGIs. It needs an approach of raising awareness on CGIs, enhancing students' emotional engagement with CGIs, strengthening critical thinking, and nurturing a sense of personal responsibility and agency. To do this, the teacher's role extends beyond facilitating understanding. However, the findings indicate that teachers' efforts to integrate CGIs in a way to enhance students' action were limited. The mean score (M = 2.32), which is below the expected mean of 3, shows this result. A one-sample t-test also confirmed there was a statistically significant difference between the observed and expected mean scores (t = 18.37, df = 71, $p < 0.001$). This meant that teachers were generally ineffective in presenting CGIs in a way to inspire students to take action on related problems of CGIs, to continue exploring these issues beyond the classroom, and to recognize CGIs as real challenges affecting their lives and communities. Furthermore, the study found that teachers

made limited use of local case studies or local examples that help students relate the CGIs to their local contexts.

The classroom observation data also indicate that most of the observed teachers did not present CGIs in ways that develop students' participation in solving problems related to CGIs. This means that teachers did not encourage students to take their own roles in solving problems related to CGIs. They did not provide students with opportunities to engage in real-life problem-solving activities. Teachers did not also simulate real-world scenarios of CGI that require students to make decisions, propose solutions and intend to take action.

However, the classroom observation data revealed that two teachers in Grade 9 presented three CGIs, such as soil erosion, deforestation, and population growth, in a way that students take action on problems related to CGIs. For instance, while teaching about soil erosion, Teacher 3 engaged students through reflective questions. He asked them questions like"What will you do if your plot of land is eroded by a flood?" In addition, this teacher encouraged students to set small, achievable goals used to prevent deforestation in their local communities. Similarly, Teacher 6 in Grade 9 made efforts to enhance students' motivation to act on deforestation by relating the issue to their personal lives and local environments. He emphasized that students have the power to contribute to solutions for deforestation. To reinforce this message, he shared stories of role models who had successfully rehabilitated degraded areas through reforestation. He also showed tangible examples, such as trees planted within the school compound, to illustrate the positive impact of local environmental action.

In conclusion, findings from the survey and class observation tools show that Geography teachers made slight efforts to develop the students' problem-solving skills and participation to respond to the problems associated with CGIs by employing problem-solving activities, incorporating activism and youth participation strategies, organizing field trips, and participating in practical efforts to address these issues. There was also little action-oriented teaching, which depicts a great deficit in the current teaching of geography. More specifically, the integration of CGIs in classroom practices does not provide students with the opportunity to take action and lead various initiatives pertaining to geographic problems in the outside and within-classroom settings. Rather, students acquire in-depth knowledge of CGIs, which lacks the motivational, confidence, and action-taking facets that impact the outside-classroom efforts to respond to the

environmental problems. This lack of action-based learning has broader implications. It implies that Geography teachers need to take the initiative in integrating CGIs in the way they develop students' participation in taking action.

4.3.2 Teachers' Use of Appropriate Teaching Methods in Integrating Contemporary Geographic Issues

To determine the degree to which Geography teachers applied the different teaching methods relevant to the teaching of CGIs in class, descriptive statistics such as the rank mean and median were used. The Friedman Rank Order Test was also used to determine whether there were any significant differences among the various teaching methods used by teachers in the teaching of the CGIs. The Friedman Rank Order Test was chosen as the test due to the within-subject design of the research, where the same group of teachers was evaluated across multiple instructional methods. This statistical test was preferred over repeated measures ANOVA because the assumption of normality required for ANOVA was violated.

As indicated in Table 4.9, the rank mean (*RM* = 12.89) indicated that the lecture method was the most frequently used teaching method used to integrate CGIs in Geography lessons. The high median value (*M* = 5.00) also indicates that most teachers employed this method very frequently in their classrooms.

Group discussion with a rank mean score of 10.10 and brainstorming, with a rank mean score of 9.59, were the other frequently used methods next to the lecture method. Their relatively high rank means that a moderate median value (*M* = 3.0) indicated that these methods were used frequently, to a lesser extent than the lecture method. Demonstration and concept maps, with rank means of 7.97 and 7.95, respectively, were also categorized as moderately used strategies for integrating CGIs into Geography lessons.

Table 4.9: Frequency of Teaching Methods Used to Integrate Contemporary Geographic Issues

Teaching Methods	*RM*	Median	*SK*	*K*	*IR*
Lecture Method	12.89	5.00	-1.337	-1.324	1.00
Group Discussion	10.10	3.00	-.394	-.343	1.00
Brainstorming	9.59	3.00	-.020	-.679	2.00
Demonstration	7.97	2.50	.161	-1.066	2.00
Concept Maps	7. 95	3.00	.145	-1.338	1,00
Experiential Learning	7.78	2.00	.434	-1.110	2.75
Problem-based learning	7.74	2.00	.199	-.106	1.00
Use of Realia	6.68	2.00	.644	.736	1.00
Reflection	6.48	2.00	-.237	-.796	1.00
Role Palys	6.33	2.00	. 425	-. 205	2.00
Community Engagement	6.11	2.00	. 570	1.021	1.76
Field Trips	5.84	2.00	.145	-.466	2,00
Simulations	5.6	2.00	1.021	.035	2.00
Case studies	4.8	1.00	-.020	4.322	1.00

Note: *RM* = Rank mean, *M* = Median, *SK* = Skewness, *IR* = Interquartile range

However, the other teaching methods such as experiential learning (*RM*=7.78, *M* = 2.00), problem-based learning (*RM* = 7.74, *M* = 2.00) realia (*RM* = 6.68, *M* = 2.00), reflection(*RM* = 6.48, *M* = 2.00), role plays(*RM* = 6.33, *M* = 2.00), community engagement(*RM* = 6.11, *M* = 2.00), simulations(*RM* = 5.60, *M* = 2.00) and case studies(*RM* = 4.8, *M* =1.00) were found to be used

by the Geography teachers at relatively low rates. This consistently low rank means that median values show that they are generally underutilized by teachers.

As indicated in Table 4.10, the Friedman Rank Order Test also showed that there was a statistically significant mean difference in the frequency with which Geography teachers employed the 14 teaching methods in integrating CGIs $\chi^2(13, N = 72) = 304.653, p < .001$).

Table 4.10: Friedman Rank Order Test Results for Teaching Methods Used in Teaching Contemporary Geographic Issues

Statistic	Value
N(sample size)	72
Chi-Square (χ^2)	304.653
Degrees of Freedom (df)	13
Asymptotic Significance (p-value)	.000

However, since the Friedman test does not identify which specific pairs of methods differ significantly, a post-hoc analysis was conducted using the Wilcoxon Signed-Rank Test to determine the specific pairwise differences in teachers' use of each pair of teaching methods. Given that 91 pairwise comparisons were made, the Bonferroni correction was applied to control for the family-wise error rate. Accordingly, the adjusted significance level was set at $\alpha = 0.05 / 91 = 0.00055$, and only *p*-values below this threshold were considered statistically significant. As indicated in Appendix P, the results of the post-hoc pairwise analysis indicated that the lecture method was consistently and significantly more frequently used than all other teaching methods ($p < .00055$). Additionally, group discussion was significantly more frequently employed than most of its lower-ranked methods, except for brainstorming ($Z = -.723b, p > .00055$) role plays($Z = 2.983b, p > .00055$) and experiential learning($Z = -2.758b, p > .00055$), where the differences were not statistically significant. For a detailed summary of the significant differences in teachers' use between each pair of teaching methods, see the pairwise comparison test table in Appendix P.

From the above findings, it is inferred that Geography teachers predominantly rely on conventional instructional strategies, such as the lecture method, group discussion, brainstorming, and demonstration, when incorporating CGIs into Geography lessons. The considerable variation in

both mean rank and median values, along with statistically significant differences in the use of each teaching method, also indicates a high degree of differences among teachers' use of each teaching method. Moreover, the results reveal that interactive and inquiry-based methods, which are known to foster students' attitudes, problem-solving abilities toward CGIs, and participation in CGIs, are employed at minimal levels. The underutilization of such methods results in missed opportunities for teachers to engage students more effectively through learner-centred and environmentally responsive pedagogy.

Observation data also indicate that teachers predominantly rely on conventional teaching methods when delivering CGIs in the classroom. Among these methods, brainstorming is the most commonly used approach. At the beginning of the lessons, teachers often prompted students to brainstorm on definitions, causes, consequences, and possible solutions to the issues, using the guiding questions provided in the textbook. Using these brainstorming activities, teachers encouraged students to engage in discussions to explore the different types of CGIs and identify their underlying causes, impacts, and solutions. For example, when Grade 9 Geography teachers taught about population growth and its composition, they asked the students using the brainstorming questions found in the textbooks. For example, Teacher 3, Teacher 4, and Teacher 6 asked the following questions. What is population composition? What do you know about age and sex structure? What is the importance of studying the age structure of a population? (p.91) Then, they made their students reflect on their answers to the whole class. After asking such questions, these teachers attempted to give a detailed explanation about this issue and its causes, consequences, and solutions.

Group discussion was another instructional strategy commonly used by Geography teachers. Most of the observed Grade 9 and 10 teachers organized students into pairs or small groups to discuss various topics based on textbook activities. For example, Teachers 1, 3, and 6 in Grade 9 were observed when they guided students to form groups of three based on their seating arrangements, and they facilitated group discussions around specific questions from the student textbook. These questions included *why is the Ethiopian population growing so fast?* (p. 90) *What are the indirect consequences of deforestation on socio-economic conditions?* (p. 112) And h*ow do human beings affect the physical environment?* (p. 165). After the group discussions, students shared and reflected on their answers with the whole class. However, the focus of

these group discussions tended to remain on fragmented facts such as the nature, causes, consequences, and solutions of population growth rather than encouraging students to explore local or global problems related to these issues or to develop their own context-specific solutions.

These teachers also encouraged students to relate CGI-related issues to their local context by using questions provided in the textbook. For instance, they made students discuss different issues of population growth by focusing on questions found in the Grade 9 textbook. These questions include: W*hy is the Ethiopian population growing so fast?* (p.90) *Do all school-age children in your locality go to school? If not, why?* (p.115) *Do people in your locality have easy access to hospitals and health centres?* (p.115) *Do farmers in your locality have enough land for farming? If not, what are the causes?* (p.115) And w*hat measures have been taken to address population pressure in your locality?* (p.115). In this regard, while some teachers asked students to share their reflections with the whole class, others did not facilitate this. Instead, they summarized and explained the students' discussions. However, as the observation data indicated, these teachers did not independently develop their own questions, nor did they design scenarios or case studies that would encourage students to connect CGIs to real-life situations. This implies that opportunities used to foster students' pro-environmental behaviors and problem-solving skills were limited.

Questioning and answering were also among the teaching methods used by Geography teachers to enhance their students' understanding of CGIs, particularly during lesson explanations. While presenting CGIs, most teachers primarily relied on the lecture method to explain the nature, causes, consequences, and solutions of various CGIs. At that time, they incorporated probing questions, directing them both to individual students and the class as a whole. For example, in Grade 10, Teacher 2, Teacher 5, and Teacher 6 asked their students questions such as *what does population growth mean? What are the causes, consequences, and possible solutions of population growth?* These questions were not taken directly from the textbook; instead, the teachers developed those questions independently to align with the topic being taught. In addition, Teacher 4, Teacher 5, and Teacher 6 were presenting their lesson by raising questions found in the text. For example, they asked their students questions, including *what is climate change? How does climate change affect Africa's development vision*?(p.44) *Explain the major challenges of climate change on African development vision(p.44) What are the solutions to the problem*

of unemployment in Africa? (129)And describe the causes and effects of coastal pollution on the African population (p.160).

Although Geography teachers did not prepare their own visual aids for teaching CGIs, some teachers in both Grade 9 and Grade 10 made use of visual and media-based instructional methods, including tables, pictures, diagrams, and graphs available in the textbook. These visual materials were used in two main ways. First, some teachers taught by directly describing the charts and tables presented in the textbook. For example, Teachers 1, 2, 5, and 6 in Grade 9 demonstrated and explained tables related to Ethiopia's population size and growth, as found on pages 90, 93, 97, and 98 of the Grade 9 Geography textbook. These included: a table showing population size and annual growth rates from 1900–2020 (p. 90), population pyramids for Ethiopia and Sweden in 2020 (p. 93), and maps depicting population distribution and density by administrative region (p. 97). On the other hand, Teachers 1 and 5 in Grade 10 used visual aids to facilitate deeper discussions around population growth. While the textbook contained some data tables addressing global and African population trends, these teachers actively engaged students by having them examine the visuals, interpret changes in population over time, and discuss potential future population projections for Africa and the world, along with their environmental consequences. Similarly, Teacher 6 encouraged students to analyze tables on world population growth (p. 89), population trends from 1950 to 2021 (p. 90), Africa's total population (p. 99), and growth rates by sub-regions within Africa (p. 100). This approach helped students connect statistical data with broader geographic and environmental implications.

In addition, one teacher (Teacher 5) encouraged students to analyze different tables, for instance, world population growth statistics (p.89), world population between 1950 to 2021 (p.90), total population in Africa (p.99), and rates of growth of populations in various regions of Africa (p.100). After the teacher made the students analyze the tables, he encouraged the students to examine the implications of each table and figure. In dealing with the discussion of deforestation, two different Grade 9 teachers (Teachers 3 and 5) instructed students to critically analyze particular pictures related to deforestation. For example, Teacher 3 utilized pictures such as "Deforestation in Ethiopia" (p.170) together with the accompanying statistics in the table "Forest Resource Degradation in Ethiopia" (p.171). He then instructed students to critically analyze the pictures together with the statistics in the table, followed by a discussion on how forest re-

sources in Ethiopia have been diminishing in the past several years. Instructed by the statistics presented, he then queried students by stating, “Why do people continue to cut down more forests? What might happen in the long run if it continues at the present pace?”

While teaching the topic of soil erosion, one teacher in Grade 9 employed field studies and local surveys as instructional methods. He encouraged students to visit a nearby plot of land affected by soil erosion, identify and analyze its causes, consequences, and possible solutions, and then prepare reports to present to the class.

In conclusion, the findings indicate that most of the teachers employed the conventional methods in teaching CGIs in Geography lessons. However, their use of alternative teaching methods such as role-plays, community engagement, field trips, case studies, simulations, games, and other interactive methods is very limited. Even the teachers did not use case studies and realia, even though the textbooks encourage them to use them in the classroom. For instance, the Grade 10 Geography textbook includes two case studies: one on the impacts of unplanned urbanization (p.166) and another on plastic pollution (p.171). Nevertheless, the teachers neither make use of these case studies in the classroom nor encourage students to engage with them as a way of fostering empathy or critical reflection on the issues discussed. This implies that teachers tend to give more emphasis to conveying knowledge about the CGIs, rather than cultivating geographically informed, critical, and empathetic global citizens who can solve problems related to CGIs.

4.3.3 Teachers' Use of Sources of Information in Integrating Contemporary Geographic Issues in Classrooms

Table 4.11: Teachers' Use of Sources of Information in Integrating CGIs

Sources of Information	Rank Mean(*RM*)	Median(*M*)	Skew-ness(*SK*)	Krutis	Interquar-tile Range
Textbook	15.18	4	-.617	.213	1.00
Television	11.53	3	-.099	-.521	1.00
Organization	10.84	3.00	-.210	-.383	.00
Maps	7.97	3.00	-1.072	.971	1.00
Outdoor activities	7. 95	3.00	-1.014	-1.001	1.00
Training	9.44	3.00	.097	2.78	1.00
Social Media	9.43	3.00	-.005	-.209	1.00
Recorded Materials	9.15	3.00	-1.299	.769	1.00
The internet	8.67	3.00	-1.021	.085	1.00
Newspaper	6.98	2.00	-.429	-1.14	1.00
Recently Published Article	6.6	2.00	-.326	-.955	1.00
Magazine	6.51	2.00	-.263	-.904	1.00
Local Areas	6.06	2.00	-.143	-.810	1.00
Radio	6.01	2.00	.193	.409	.00
Feldwork	5.95	2.00	-.027	-1.62	2.00
GIS	4.5	2.00	-.269	1.024	.00

Effective teaching of CGIs requires the use of a wide range of information sources. These sources make the integration of CGIs in classrooms more vivid, realistic, and contextually grounded. This, in turn, helps students better understand the real-world challenges associated with CGIs and supports them in developing analytical and problem-solving skills. Thus, to examine how frequently teachers used different sources of information in the context of teaching CGIs in the classroom, a rank mean and a Friedman Rank Order Test were used. The rank mean and median values indicate that Geography teachers did not use all sources of information equally when they integrate CGIs in the classroom. As indicated in Table 4.11, for example, textbooks received the highest Rank Mean (15.18) and Median (4.00)**.** Additionally, the high negative skewness (*SK* = -.617) indicates that teachers' responses were concentrated at the higher end of the frequency scale (always), reinforcing that the textbook is a dominant source of information used to teach CGIs.

Other sources of information, like television (*RM* = 11.53), environmental organizations (*RM* = 10.84), maps (*RM* = 9.56), outdoor activities (*RM* = 9.50), training (*RM* = 9.44), social media (*RM* = 9.43) and recorded materials (*RM* =9.15) with a median value of each 3.00 showed that Geography teachers used these sources occasionally in their classroom teaching. On the contrary, newspapers (*RM* = 6.98), recently published articles (*RM* = 6.60), magazines (*RM* = 6.51), local areas (*RM* =6.06), radio (*RM* = 6.01), fieldwork (*RM* = 5.95), and GIS (*RM* = 4.50) have the lowest mean ranks. Their respective median value (*M* = 2:00) also implies that the teachers rarely used these sources as teaching materials when they integrated CGIs in geography lessons. The Friedman Rank Order Test result also points out that there was a significant difference between the use of each source of information by geography teachers to teach CGIs in Geography classrooms $\chi^2(15, 72) = 417.351$, $p < .001$). This implies that a significant difference exists in the usage rate of each of the sources of information.

Table 4.12: Friedman Rank Order Test for Using Sources of Information

Statistic	Value
N(sample size)	72
Chi-Square (χ^2)	417.351
Degrees of Freedom (df)	15
Asymptotic Significance (p-value)	.000

Although the Friedman Test is used to identify overall significant differences in teachers' use of various sources of information, it does not indicate which specific pairs differ significantly. Therefore, after applying the Bonferroni correction ($\alpha = 0.00042$), a Wilcoxon Signed-Rank post-hoc test was used to determine which pairs of information sources showed statistically significant differences in usage by teachers. As indicated in the pairwise result table in Appendix Q, it was found that textbooks were found to be significantly more frequently utilized by Geography teachers than all other sources of information ($p < 0.00042$). Television, which ranked second, was also used by Geography teachers significantly more than most other sources, following textbooks ($p < 0.00042$). Appendix Q shows the significant difference between each pair of source of information used by geography teachers.

Generally, the result of the findings regarding the quantitative data shows that there is a wide variation among teachers regarding the use of the sources of information. Despite teachers' use of the conventional source of learning widely, such as textbooks, they rarely used recent and realistic sources, such as radio, newspapers, recently published articles, and GIS. The results show there is a wide variation among teachers regarding their dependence on recent sources. Thus, there is a need to fill the gap between the availability and use of recent sources by teachers to effectively integrate CGIs in the classroom programs.

In addition, the data from the class observation showed that most of the Geography teachers depended on textbooks as their central source of information when they taught CGIs. The teachers utilized examples, graphs, tables, images, and charts found in the textbooks to support the teaching of CGIs for the learners. However, the use of alternative and up-to-date sources, such as the internet, social media, radio, and television, was notably rare. Only two teachers, Teacher 3 in Grade 9, were observed who employed the internet and YouTube to download highly eroded regions. These teachers downloaded the eroded areas and showed for their students. In Grade 10, Teacher 2 employed multimedia in teaching the topic of climate change. The teacher provided brief videos and documentaries that were recorded using a smartphone to show how climate change caused flooding, drought, and famine, and how the people were affected by climate change. Additionally, he provided real-life situations of flooding that occurred in China and Nigeria, as well as drought and famine in regions of Ethiopia. The teacher informed the learners to use YouTube to search to the extent CGIs are negatively affecting different regions across the

world. The teacher also provided examples of how different regions within Africa were negatively affected by droughts, famines, and floods caused by climate change.

This implies that most Geography teachers did not use different information sources that help students build geographical knowledge, develop analytical and problem-solving skills, environmental concerns, and understand CGIs and related problems, and real-world challenges in a spatial, environmental, and socio-economic context.

4.4 The Effects of Integrating Contemporary Geographic Issues on Students' Perceived Literacy of Contemporary Geographic Issues

This study investigated the extent to which Geography teachers' integration of CGIs into their lessons influenced students' perceived literacy in CGIs, which focuses on students' perceived knowledge and skills of CGIs, their attitudes, and intention to act on CGIs. To explore this, data were mainly collected through a survey questionnaire. Subsequently, each component of CGI literacy, such as perceived knowledge and skills, attitudes, and intention to act on CGIs, was examined to identify which aspect of CGI literacy was most affected by the integration of CGIs in the classroom. To support this larger quantitative data, the qualitative data obtained from an in-depth interview was used. Further, findings from Grade 9 and Grade 10 were presented separately, given that the types and contextual relevance of CGIs covered in the respective textbooks varied. In addition, as other inferential statistics, the assumptions of repeated measure of ANOVA were checked. However, since the assumption of sphericity is violated, a sphericity correction (such as Greenhouse–Geisser) was applied, and appropriately adjusted. In the case of assessing the effects of the integration on Grade 10 students' attitude development towards CGIs as the assumption of sphericity was not violated.

4.4.1 The Effects of Integrating Contemporary Geographic Issues on Grade 9 Students' Perceived Literacy of Contemporary Geographic Issues

Perceived literacy about CGIs of grade 9 students was measured based on the data collected through a survey questionnaire, which included items tapping students' perceived knowledge and skills regarding CGIs, their attitudes towards CGIs and intention to act concerning CGIs. To complement and add depth to this quantitative data, in-depth interviews were also conducted. Thus, the effects of the integration of CGIs on students' perceived knowledge, skills, attitudes,

and intention to act before integration, immediately after integration, and sometime after the integration were assessed and presented below.

4.4.1.1 The Effects of Integrating Contemporary Geographic Issues on Grade 9 Students' Perceived Knowledge of Contemporary Geographic Issues

Table 4.13 indicates the students' perceived knowledge mean scores of the CGIs at the pre-test, post-test, and follow-up test. Based on the mean scores of pre-test (3.03), post-test (3.423), and follow-up test (3.418), it was found that there was an enhancement of Grade 9 students' perceived knowledge of CGIs from the pre-test to the post-test. Despite the progress made by the students from the pre-test to the post-test, their perceived knowledge from the post-test to the follow-up test declined. This indicates that the integration of CGIs on students' perceived knowledge was not sustained, and students' overall perceived knowledge of these issues remains at a relatively average level.

Table 4.13: Students' Pretest, Post-Test and Follow-Up Scores on Students' Perceived Knowledge of CGIs

Group	*N*	*M*	*SD*	*SS*	*df*	*MS*	*F*	*Sig.*	η^2
Pre-test	168	3.031	.3670	3.287	1.969	1.969	60.507	.000	.266
Post-test	168	3.423	.3978						
Follow-up test	168	3.418	.4176						
Errors/Residuals				9.072	278.806	.033			

Key: N = number of participants, M = mean score, SD = standard deviation, SS = Sum of Squares, MS = mean score, F = F-statistic, Sig = P-value, η^2 = Partial Eta Square.

Results of the repeated measures ANOVA also showed that a statistically significant difference existed in students' perceived knowledge of CGIs over time $F(1.969, 278.806) = 60.507$, $p < .001$. However, since repeated measures ANOVA does not specify when those values differ significantly from each other, Wilcokson Rank Signed Test pairwise comparisons were used using the Bonferroni adjustment to control for Type I error due to multiple comparisons. The pairwise comparison results showed that a statistically significant difference existed between the perceived knowledge of CGIs before (pre-test) and after integration (post-test), with a mean differ-

ence (*MD*) = −0.392, Standard Error (*SE*) = 0.033, and $p < .001$. However, this was not true after the follow-up stage since a statistically significant difference was not found between post-test and follow-up test with *MD* = −0.004 and *SE*=0.010; $p > .05$. These findings imply that while the integration of CGIs has a positive short-term effect on students' perceived knowledge, the lack of continued growth at the follow-up stage highlights the importance of ongoing reinforcement to maintain and further develop understanding over time.

Table 4.14: Pairwise Comparisons of Students' Perceived Knowledge Across Pre-test, Post-test, and Follow-up Measurements

		Pairwise Comparisons with Bonferroni Adjustment				
Comparisons		Mean difference	Std. Error	*Sig.*[b]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.392	**.**033	.000	-472	-.312
	3	-.388	.035	.000	-.472	-.303
2	1	.392	.033	.000	.312	.472
	3	.004	.010	1.000	.020	.029
3	1	.388	.035	.000	.303	.472
	2	-.004	.010	1.000	-.029	-.020

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

1 = pre-test, 2, post-test, 3 follow-up test

Students who were chosen to undergo an in-depth interview were also queried if their level of perceived knowledge on the various types of CGIs had increased after the integration of CGIs. All the students answered that they had some knowledge of various types of CGIs even before exploring them in Grade 9. However, their perceived knowledge had increased a lot after they learned in Grade 9. They now feel more confident in their knowledge of the definitions, causes, consequences, and possible solutions of each issue. As one student (Student 1) put it:

> I believe that my knowledge of different types of CGIs, such as soil erosion, deforestation, population growth, environmental degradation, and unplanned urbanization, increases

> from time to time. I know what soil erosion means. It is the degradation of the loom soil by different agents, for example, human beings and the flood. If the soil is eroded, there is no life. Therefore, we all need to protect. I am well familiar with how to protect it. We can protect it by planting trees, counter ploughing, and building terracing. I am also familiar with what population growth means, its causes, consequences, and solutions. It is the increase in the number of people beyond the country's income. Its cause is a lack of education, particularly the inability to use contraceptive methods.

The third student also felt that he understood the causes, consequences, and possible solutions of various CGIs such as soil erosion, deforestation, environmental degradation, population growth, and unplanned urbanization. He attributed this knowledge to learning about these issues across different grade levels, including Grade 9. Reflecting on this, he stated, "After I learn in grade 9, I feel that I am familiar with the causes, consequences, and solutions of the CGIs integrated in the Grade 9 Geography textbook. For example, Student 3 states, "The causes of deforestation are the clearing of forests for farming and charcoal. Soil is also eroded by wind, flood, overgrazing, and inappropriate ploughing." Student 5 declared that,

> I am familiar with soil erosion, deforestation, and population growth. I was able to learn them thoroughly in grade 9. I felt my knowledge had been raised. Moreover, I read more about them. I especially read about the causes, consequences, and solutions of the issues. Thus, in my view, since I learned the causes, consequences, and solutions of CGIs in detail, I am sure that I will never forget those things. Even I recognize the problems in my surroundings due to those issues.

From the above quotes, it is possible to infer that the students' perceived knowledge of CGIs has been improved after the integration of CGIs in Grade 9, although they have some knowledge about the issues.

4.4.1.2 The Effects of Integrating Contemporary Geographic Issues on Students' Perceived Skills of Contemporary Geographic Issues

Table 4.15: Pretest, Post-Test and Follow-Up Scores on Students' Perceived Skills of CGIs

Group	N	M	SD	SS	DF	MS	F	Sig.	η^2
Pre-test	168	3.0	.6499	7.291	1.480	4.926	34.813	.000	.173
Post-test	168	3.05	.3438						
Follow-up test	168	2.78	.5861						
Error/Residuals				34.974	247.168	.141			

Key: N = number of participants, M = mean score, SD = standard deviation, SS = Sum of Squares, MS = mean score, F = F-statistic, *Sig* = *p*-value, η^2 = Partial Eta Square.

In Table 4.15 above, the mean scores of the pre-test (M = 3.00), post-test (M = 3.05), and follow-up tests (M = 2.78) are displayed. The mean score results indicated that there was a slight improvement in students' perceived skills of CGIs from the pre-test to the post-test stage. However, there was a noticeable drop in the perceived skills mean score at the follow-up stage. This decline of the students' perceived skills at the follow-up stage implies that there is a lack of durability in the intervention's effect without continued reinforcement or instructional support. A repeated measure of ANOVA was also conducted to determine whether the changes in students' perceived skills across three time points (pre-test, post-test, and follow-up) were statistically significant. The result showed that there was a statistically significant effect of intervention on students' perceived skills in CGIs F (1.48, 247.17) = 34.81, $p < .001$.

In order to identify at which point there were significant changes in the perceived skills of CGIs among students, a pairwise comparison test was carried out. Results indicated that there was not a statistically significant mean difference between pre-test and post-test results of students' perceived skills (MD = –0.051, SE = 0.042, $p > 0.05$), and. However, there was a significant decline in perceived skills from pre-test to follow-up test (MD –0.226, SE = 0.023, $p < 0.001$). In addition, there was a significant decline in perceived skills from post-test to follow-up test (MD – 0.277, SE = 0.038, $p < 0.001$). These findings indicate that although students initially have some

skills and their perceived skills increase after integration, these skills declined considerably over time, suggesting that the instructional impact was not sustained.

Table 4.16: Pairwise Comparisons on Students' Perceived Skills Scores Across Pre-test, Post-test, and Follow-up Measurements

Pairwise Comparisons						
Comparisons		Mean difference	Std. Error	*Sig.*[b]	95% ConfidenceInterval	
					Lower Bound	Upper Bound
1	2	-.051	**.**042	.667	-.152	-.050
	3	-.226	.023	.000	-.170	-.281
2	1	.051	.042	.667	-.050	.152
	3	**.277**	.038	.000	.184	.369
3	1	.226	.023	.000	-.281	.170
	2	-.277	.038	.000	-.369	-.184

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

1 = pre-test, 2, post-test, 3 follow-up test

As far as the skills they were able to develop by incorporating CGIs in the Geography class is concerned, students also differed in their expressions during an interview. Although two students felt that they were satisfied with the skills they obtained because of the integration of CGIs, others were in doubt. For instance, Student 2 stated:

> I feel that I have developed good skills in solving problems related to different types of contemporary geographic issues, although there are no opportunities to apply these skills. For example, soil erosion is a common contemporary geographic issue in our local area. I have the skills to solve this problem. I have the skills to plant trees in eroded areas. I have skills in terracing. If I am allowed to solve problems related to each issue, I feel I can make decisions based on the different evidence. I can move the people to participate in problems related to each issue.

Student 6 also states his verbatim as follows.

> Although I cannot say I have developed good skills in solving problems related to each contemporary geographic issue, learning them in grade 9 made me develop some skills in solving problems related to each contemporary geographic issue. For example, I can collect data on which contemporary geographic issues are common in a particular place, and the causes of each contemporary geographic issue and its solutions. I have also developed the skills of collaborative work. Therefore, I can engage in the community to solve problems related to each issue. This is because environmental problems require collective action and community engagement. So we do some activities in our school. I can also solve problems related to deforestation. I can teach people how to prevent deforestation.

Student 6, too, felt that he possessed some skills used to solve problems related to CGIs. Regarding this, he states: "I feel that I have developed certain skills used to solve problems related to each of the contemporary geographic issues we learned in grade 9. For example, if you ask me how to solve problems related to soil erosion, I can solve it by making terracing. I also know how to build terracing used to prevent soil erosion."

On the other hand, four students, namely Student 1, Student 3, Student 4, and Student 5, doubted whether they had acquired the relevant skills used to solve problems about CGIs. While they reported gaining knowledge on the cause, consequences, and possible solutions of a variety of CGIs discussed in class, they were less certain whether they had acquired practical problem-solving skills. This is because they have not been engaged actively in real-life situations that could make them apply what they have learned in the classroom. They also mentioned that they had limited technological skills and access to information sources like the media and the internet. This, in turn, hinders their acquisition of adequate problem-solving skills of CGIs.

The following quote from Student 1 illustrates this concern:

> I do not feel I have developed good skills in solving problems related to contemporary geographic issues. Of course, I know how to solve the problems caused by contemporary geographic issues, but practically, I feel I am unable to solve the problems of contemporary geographic issues. This is because when I learn about contemporary geographic issues in the classroom, particularly the causes and solutions, I do not see them practically.

Likewise, student 3 states:

> It is difficult to say I have developed adequate skills used to solve problems related to contemporary geographic issues. Of course, theoretically, I know how to solve problems relat-

ed to contemporary geographic issues. However, practically, I feel I cannot do that. For example, I do not have a good skill in measuring how much our environment is polluted and how to treat it.

4.4.1.3 The Effects of Integrating Contemporary Geographic Issues on Grade 9 Students' Attitudes toward Contemporary Geographic Issues

Table 4.17: Pre-test, Post-Test and Follow-Up Test Scores on Students' Attitude of CGIs

Group	N	M	SD	SS	*df*	MS	*F*	*Sig.*	η^2
Pre-test	168	3.14	.4727	83.815	1.355	61.872	307.35	.000	.648
Post-test	168	4.02	.5603						
Follow-up test	168	3.17	.4090						
Error/Residuals				45.541	226.225	.201			

Key: N = number of participants, M = mean score, SD = standard deviation, SS = Sum of Squares, MS = mean score, F = F-statistic, Sig = P-value, η^2 = Partial Eta Square.

As indicated in Table 4.17, the students' attitudes toward problems related to CGIs rose from the pre-test (M = 3.14) to the post-test (M = 4.02). However, there was a drop at the follow-up test (M = 3.12). This implies that the result of the intervention has had short-term effects. That is, the results were not sustained. The repeated measure of ANOVA also revealed that the effect of time(attitude scores over pre-test, post-test, and follow-up) is statistically significant F(1.355, 226.23) = 307.35, $p < .001$.

To examine when a significant mean difference in attitudes of students on CGIs was found across the three time points, pairwise comparison was carried out. As shown in Table 4.18, the results showed that there was a significant improvement in students' attitude on CGIs between the pre-test and the post-test(MD = –0.876, SE = 0.049, $p < 0.001$), suggesting that students were more attuned to the CGIs after the integration. However, there was no statistical mean difference between pre-test and follow-up test results (MD = –0.023, SE = 0.023, $p > 0.05$), suggesting that the students' attitude was restored to normal settings. Additionally, a significant reduction in the students' attitude was observed between the post-test and follow-up test(MD = 0.853, SE = 0.044, $p > 0.05$). This implies that students' attitudes were not sustained when there was a lack of continuous and reinforcing contact with the CGIs.

Table 4.18: Pairwise Comparisons on Students' Attitude Scores Across Pre-test, Post-test, and Follow-up Measurements

Pairwise Comparisons						
Comparison		Mean difference	Std. Error	*Sig.*[b]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.876	.049	.000	-995	-.758
	3	-.023	.023	.956	-.079	-.033
2	1	.876	.049	.000	.758	.995
	3	.853	.044	.000	.747	.959
3	1	.023	.023	.956	.033	.079
	2	-.853	.044	.000	-.959	-.747

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

1 = pre-test, 2, post-test, 3 follow-up test

When asked to what extent the integration of CGIs into their learning of geography has influenced their attitudes towards these topics, the students gave different answers. Three students showed an increased attitude towards specific CGIs, while the others stated that their attitude fluctuates over time. Those three students, such as Student 1, Student 2, and Student 4 replied that their attitude has grown through time since they began learning about each issue. This increment, in turn, enhances their ability to respond to CGI-related problems. In this context, the first student stated, "The integration of CGIs makes me conscious and has a positive attitude towards CGIs. As a result, I can find solutions to each CGI. Even when I read events or stories related to CGIs, it evokes my emotions on the issues, and increases my mindfulness on each issue."

The second student has also added that his attitudinal change to CGI-related problems has deepened his understanding of the CGIs. He explained that this type of attitude development has strongly strengthened his empathic and emotional connectedness with nature, shaped his personal views and values about the environment, and turned him more willing to behave in a pro-

environmental manner. In light of this, this student states, “I become more conscious and sensitive when the teacher engages me in real-life situations. This, in turn, makes me find solutions to each CGI. Even when I read events or stories related to CGIs, it evokes my emotions on the issues, and increases my mindfulness on each issue.”

The fourth student also pointed out his emotional stance towards CGIs, especially on soil erosion and deforestation, found to be stronger than those of the other students. In light of this, he states:

> I become more conscious when the teacher encourages us to debate on current environmental issues such as deforestation and soil erosion. Moreover, when the teacher tells us events related to CGIs, for example, population growth and environmental problems, my emotions connected with the natural world are evoked. When the teacher brings real-life situations, for example, soil erosion and deforestation, into the classroom, I appreciate nature’s beauty and fragility.

From these students’ verbatim expressions, it is possible to conclude that enhancing students' attitude toward CGIs is very important in shaping the values, attitudes, and behaviors of students. This also indicates that enhancing students’ attitude to CGIs during environmental education involves assessing their empathy, attitudes, values, and behavioral intentions toward the environment.

The second group of students (Student 3, Student 5, and Student 6) replied that their attitude towards CGIs increased due to concrete examples presented by the teachers that are linked to their immediate context. Furthermore, these students added that their attitude gets enhanced when the teacher uses visual aids such as pictures, graphs, and social media. This, in turn, made them understand environmental issues. On the other hand, the students stated that their attitudes get lowered in classroom lessons when the teacher presents facts or theoretical discussions about CGIs. As Student 3 remarked:

> When I was learning about contemporary geographic issues such as soil erosion, deforestation, environmental degradation, or population growth, I became sensitive about the issues, particularly when the teacher invited us to look up the tables, figures, or YouTube videos on problems related to CGIs. Sometimes, the teacher showed us highly eroded areas found in mountainous areas using his mobile. At that time, I became sensitive to these problems and began to solve them. However, after some time, my attitude decreased.

In the same vein, Student 5 stated, "I became more conscious when I observed eroded areas, pictures that show a degraded area, particularly when I was learning about contemporary geographic issues. For example, when I learn about soil erosion, I relate the lesson to my local area. Thus, when I see the eroded area in my local area, I become more conscious about that issue. But now my sensitivity is as before." Student 6 also added, "When I learn about CGIs, I become more sensitive when the teachers relate the issues to my local area. At that time, I felt the power to solve problems related to environmental problems.

Student 1 also states his feelings like this: "Sometimes our teacher encouraged us to discuss current environmental issues such as deforestation, soil erosion, or population growth. He made us discuss focusing on their severity, their effects on human beings, and the environment. At that time, I became more conscious about the issues, and I have an interest in engaging in solving the problems. However, after a while, my attitude is getting lower as there is less engagement on CGIs.

4.4.1.4 The Effects of Integrating Contemporary Geographic Issues on Students' participation on Contemporary Geographic Issues

As seen in Table 4.19 above, the mean scores of pre-test (M = 3.12), post-test (M = 3.14), and follow-up test (M = 2.92) showed that the students' intention to act on problems associated with CGIs varied across the three time points. The data indicated that there was a slight increase in students' intention to act from the pre-test to the post-test stages. However, there was a significant drop at the post-test to follow-up test stages. Even the follow-up test dropped below pre-test records. This trend showed that the intervention was not enduring over time.

Table 4.19: Pretest, Post-Test and Follow-Up Scores on Students' Intention to Act on CGIs

Group	N	M	SD	SS	*df*	MS	*F*	*Sig.*	η^2
Pre-test	168	3.12	.3735	5.028	1.227	4.098	24.513	.000	.128
Post-test	168	3.14	.3340						
Follow-up test	168	2.92	.5255						
Error/Residuals				34.257	204.920	.167			

Key: N = number of participants, M = mean score, SD = standard deviation, SS = Sum of Squares, MS = mean score, F = F-statistics, Sig = p-value, η^2 = Partial Eta Square

The result of a repeated measure of ANOVA revealed that there was a statistically significant mean difference across the three time points ($F(1.23, 204.92) = 24.51$, $p < .001$), indicating that the mean scores significantly differed across the three time points.

The pairwise comparison test, as indicated in Table 4.20, shows how students' intention to act on CGIs changed before**,** immediately after**,** and sometime after the integration of CGIs in the classroom. Although the pairwise comparison analysis shows that there is an increment of students' intentions of acting on problems related CGIs from Time 1(before intervention) to Time 2(after intervention), there was no a statistically significant difference between the period before integration (pre-test) and immediately after integration (post-test), with *MD* = -0.024, *SE* = 0.016, and $p > 0.05$**.** However, a significant increase was observed from pre-test to the follow-up test (Time 3), with MD = -0.199, *SE* = 0.041**,** $p < 0.001$. Additionally, there was a statistically significant decline in students' intention of acting on CGIs from post-test to follow-up test **(***M* = -0.223**,** *SE* = 0.041, $p < 0.001$). This highlights that students discontinued to develop their intention to act after the formal integration ended, and the intervention did not have a longer-term effect on students' action intentions.

Table 4.20: Pairwise Comparisons on Students' Intention of Acting Scores Across Pre-test, Post-test, and Follow-up Measurements

Pairwise Comparisons						
Comparison		**Mean difference**	Std. Error	*Sig.*[b]	95% Confidence Interval	
					LowerBound	Upper Bound
1	2	-.024	.016	.382	-063	-.014
	3	-.199	.041	.000	-.099	-.298
2	1	.024	.016	.382	-.014	.063
	3	.223	.041	.000	.123	.323
3	1	.199	.041	.000	.298	-.099
	2	-.223	.041	.000	-.323	-.123

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

1 = pre-test, 2, post-test, 3 follow-up test

The above quantitative data, in general, shows that the integration of CGIs in Geography lessons increased students' intention to act on CGI-related problems after the integration had taken place. However, their intention decreased after some time. This implies that the integration does not have a long-lasting impact.

Data obtained from key informant interviews also revealed that students expressed varying levels of intention to act on issues related to CGIs. Two students (student 1 and 5) reported they had developed some desire to engage in solving CGI-related problems when these topics were addressed in the classroom. In contrast, the remaining four students stated that although they became more aware of the problems caused by CGIs, their intention to take action diminished over time.

4.4.2 The Effects of Integrating Contemporary Geographic Issues on Grade 10 Students' Literacy of Contemporary Geographic Issues

The effects of integrating CGIs on Grade 10 students' perceived literacy of CGIs, such as their perceived knowledge, skills, attitudes, and intention to act, were assessed and presented as follows.

4. 4.2.1 The Effects of Integrating Contemporary Geographic Issues on Students' Perceived Knowledge of Contemporary Geographic Issues

Table 4.21 displays the descriptive statistics on the perceived knowledge of the Grade 10 students towards the CGIs. The pre-test, post-test, and follow-up test results indicate that there is a slight increase in Grade 10 students' perceived knowledge of CGIs from the pre-test (M=3.55) to the post-test (M = 3.59). This shows that there is a slight improvement in the students' comprehension of the CGIs after the instructional treatment. Nevertheless, during the follow-up phase, the mean scores decreased to 3.37, showing a decrease in the students' retaining on the knowledge they acquired about the CGI. This trend of the result indicates that the integration of

the CGIs by the teachers positively impacts the students' retention of the knowledge of the CGIs, although it does not have sustainability.

Table 4.21: Results of Repeated Measures ANOVA on Students' Perceived Knowledge of CGIs across Time Points

Group	N	M	SD	SS	*df*	MS	*F*	*Sig.*	η^2
Pre-test	168	3.55	.4079	4.858	1.790	2.714	12.618	.000	.066
Post-test	168	3.60	.4055						
Follow-up test	168	3.37	.4055						
Error/Residuals				68.916	320.387	.215			

Key: N = number of participants, M = mean score, SD = Standard Deviation, SS = Sum of Squares, MS = mean score, F = F-statistics, Sig = P-value, η^2 = Partial Eta Square

Analysis of repeated measures of ANOVA was carried out to see if there is a significant mean difference in students' perceived knowledge levels concerning CGIs across the three time points. Results indicated that there was a statistically significant effect of integration on students' perceived knowledge of CGIs across time points $F(1.79, 320.39) = 12.62$, $p < .001$.

To understand the intensity of the changes that took place(pre-test, post-test or follow-up test) in terms of students' perceived knowledge of CGI, a Bonferroni-corrected paired comparison was conducted. As indicated in Table 4.22, there was no significant difference between pre-test and post-test on students' perceived knowledge of CGIs(t = -0.045, SE = 0.038, p > 0.05). This means that there was no significant change in students' perceived knowledge of CGIs immediately after the integration. On the other hand, a significantly decreasing trend was found to be present in the values of pre-test to the follow-up stage (t = 0.175, SE = 0.052, p < 0.05). This means that students' perceived knowledge of CGI was below the baseline level after a long period of time. Additionally, it was found that there was a significant mean difference in students' perceived knowledge between the post-test and the follow-up test(t = 0.220, SE = 0.048, p < .001), supporting that there was a further drop in the level of knowledge of CGI from the post-test to the follow-up stage.

Table 4. 22: Bonferroni-Adjusted Pairwise Comparisons of Students' Perceived Knowledge CGIs across Three Time Points

Pairwise Comparisons						
Comparison		Mean difference	Std. Error	*Sig.*[b]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.045	.038	.709	-.137	-.047
	3	.175*	.052	.003	-.050	-.300
2	1	.045	.038	.709	.047	.137
	3	.220*	.048	.000	.104	.336
3	1	-.175*	.052	.003	.300	.050
	2	-.220*	.048	.000	-.336	-.104

*. The mean difference is significant at the .05 level

b. Adjustment for multiple comparisons: Bonferroni

1 = pre-test, 2, post-test, 3 follow-up test

Data about students' perceived knowledge of CGIs was also obtained from the interviewees. When students were asked to reflect on their perceived knowledge of CGIs before and after the intervention, their responses varied in both content and expression. While five of the respondents reported they feel their overall perceived knowledge of CGIs has increased after they have learned different CGIs, they acknowledged that their understanding of CGIs fluctuated across different stages of the learning process. For instance, Student 1 explained, "In my view, my knowledge of contemporary geographic issues varies over time. For example, if you ask me about the causes, consequences, and solutions of these issues right after I have learned them, I can answer confidently. I still have a good grasp of them now, especially because I studied them thoroughly for exams. However, after some time, I might forget certain details."

These responses by this student illustrate an underlying trend in the way students learn. In this regard, a student may be very confident in his comprehension immediately after teaching. However, after some time later after instruction (over time), comprehension may reduce. From this, it could be inferred that while incorporating CGIs in the teaching and learning process may be an effective method of enabling students to improve their comprehension regarding CGIs in the short term, it does not remain so in the longer term. This suggests that it is important that the students are exposed to CGIs beyond the initial classrooms.

In the same vein, the second student states:

> I feel that my knowledge of contemporary geographic issues is higher than other topics of Geography, as I have learned about them since lower grades. For example, I learned about population growth, climate change, and environmental pollution several times. Thus, since the issues are interesting, I refer to different materials, including the internet or YouTube, using my parents' phones or laptop as soon as my teacher taught me each of the CGIs. Particularly using YouTube, I could deepen my understanding of contemporary geographic issues as YouTube is used to show real pictures of the causes and consequences of climate change, coastal erosion, and others.

Student 4 also added, "I have never forgotten the causes, consequences, and solutions of contemporary geographic issues, as my teacher brings real-world events and firsthand experiences when he presents contemporary geographic issues. The contents of contemporary geographic issues are not complex, so I can read and understand them easily."

The third student also mentions, "The contents of contemporary geographic issues are not complex, so I can read and understand them easily. The most important thing is presenting them in the classroom appropriately and contextually." This reflects that this student thinks connecting CGIs to real-life events and personal experiences greatly enhances his comprehension and long- term retention of CGIs. Furthermore, when content is related straightforwardly and appears manageable, students are more inclined to work on it independently. This, in turn, highlights that teaching approaches that contextualize learning and make challenging concepts simple are likely used to enhance both comprehension and memory of CGIs effectively.

On the other hand, one student feels that his knowledge of CGIs has not increased much as the topics covered in the textbooks are very large, and the teacher rushed to cover all the topics. He understands these complex issues when he reads the textbook independently rather than attending the class. Even he reported that he feels he has not got adequate knowledge about CGIs in Grade 10 than he knew before. His verbatim shows his feelings in detail as follows.

> I feel that my knowledge of CGIs such as climate change, population growth, pollution, and others has not much improved since before. I have some general knowledge about those issues before now. When I learned them in grade 10, I felt that I had not gained more knowledge than before about climate change, population growth, or environmental pollution. I know what each issue means, and what the causes, consequences, and solutions of each issue are. The difference is that they focus on Africa.

In general, from most of the students' verbatim expressions, it is inferred that the students feel they have gained knowledge concerning CGIs as a result of the integration of CGIs in the classroom. This indicates that the integration of CGIs in the classroom with appropriate teaching methods and contextualization is a crucial step towards raising the generation's knowledge of the CGIs. Additionally, incorporating CGIs into daily learning activities will enable geography teachers to provide the relevant knowledge and awareness concerning the CGIs and the environmental challenges that our planet currently faces.

4.4.2.2 The Effects of Integrating Contemporary Geographic Issues on Students' Perceived Skills of Contemporary Geographic Issues

As the mean scores in Table 4.23 showed, the students' perceived skills about the CGIs increased from the pre-test($M = 3$) to the post-test ($M = 3.43$), and from the pre-test to the follow-up test ($M = 3.20$). However, there was a drop from the post-test ($M = 3.43$) to the follow-up test ($M = 3.20$). This reflects that though the integration of CGIs within classroom instruction enhanced the problem-solving skills of the students, this was not maintained for a long period. That is, the intervention resulted in short-term improvement, but these improvements faded when reinforcement or practice for an extended period did not occur.

Table 4.23: Results of Repeated Measures ANOVA on Students' Perceived Skills of CGIs across Time Points

Group	N	M	SD	SS	*df*	MS	*F*	*Sig.*	η^2
Pre-test	180	3.00	.3008		1.859	2.714	57.12	.000	.242
Post-test	180	3.43	.3854						
Follow-up test	180	3.21	.3957						
Error/Residuals				68.916	332.813	.215			

To determine whether there were any statistically significant differences in the students' perceived skills of CGI over time, a repeated measure of ANOYA test was used. The result of the test showed a significant mean difference in the students' perceived skills was observed across the three time points $F(1.859, 332.813) = 57.12$, $p < .001$.

A Bonferroni pairwise comparison test was also conducted to establish when the changes in the mean scores occurred. The results demonstrated that students' perceived skills in CGIs were significantly different at each of the three times. The students' post-test scores were significantly higher compared to the pre-test measure ($MD = 0.419$, $p < .001$), and the follow-up scores were significantly higher than pre-test scores (MD = 0.203, $p< .001$). However, the students' scores related to their perceived skills were significantly lower in the follow-up compared to the post-test measure ($MD = 0.203$, $p < .001$). These results indicate that although there was a substantial immediate enhancement in students' perceived skills in CGIs, there was a decline at the follow-up stage. This implies that the effect of the integration on students' perceived skills in CGIs is not sustained.

Table 4.24: Bonferroni-Adjusted Pairwise Comparisons of Mean Scores for Students' Perceived Skills of CGIs Across Time Points

Pairwise Comparisons						
Comparisons		Mean difference	Std. Error	Sig.[b]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.419	.033	.000	-.500	-.338
	3	-.203	.042	.000	-.305	-.101
2	1	.419	.033	.000	.338	.500
	3	.216*	.041	.000	.116	.316
3	1	.203	.042	.000	.101	.305
	2	-.216	.041	.000	-.316	-.116

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni

1 = pre-test, 2, post-test, 3 follow-up test

4.4.2.3 The Effects of Integrating Contemporary Geographic Issues on Students' Attitudes Toward Contemporary Geographic Issues

As depicted in Table 4.25, the mean scores were used in analyzing students' attitudinal change towards CGIs because of the integration of CGIs in Geography classrooms at three points in time, namely pre-test, post-test, and follow-up test. Thus, the mean score for attitude during the pre-test was 3.01, which is a small value at the initial level. After the integration of CGIs(post-test), the mean score improved to 3.42, showing some improvement from the pre-test results. Then, at the follow-up test, the mean score reduced to 3.14, showing a decrease of 0.28 points from the post-test score. These results imply that although the integration of CGIs could enhance students' attitude towards CGIs to a smaller extent and in the short term, students' attitude declined over time.

Table 4.25: Results of Repeated Measures ANOVA on Students' Perceived Attitude of CGIs Across Time Points

Group	N	M	SD	S S	df	MS	F	Sig.	η^2
Pre-test	180	3.01	.3008		2	2.714	54.034	.000	.232
Post-test	180	3.42	.3854						
Follow-up test	180	3.14	.3957						
Error/Residuals				68.916	358	.215			

Keys: N = number of participants, M = mean score, SD = standard deviation, SS = Sum of Squares, MS = mean score, F = F-statistic, Sig = P-value, η^2 = Partial Eta Square.

To see if there were any significant changes to students' attitudes towards CGIs over time, a repeated measure of ANOVA test was conducted. As its assumptions were met for sphericity, the values for sphericity were used for this analysis. The ANOVA result, thus, showed that there was a significant enhancement of students' attitude towards CGIs at F (2, 358) = 54.034, $p <$ .001).

To determine where exactly the profound differences lie regarding students' attitudes toward CGIs, Bonferroni-corrected paired comparisons were conducted. The data showed that there was a statistically significant difference between the mean scores of post-test and pre-test (MD = -0.413, SE = 0.043, $p < 0.001$) and post-test and follow-up (MD = -0.282, SE = 0.038, $p <$ 0.001) values. In addition to this, there was also a significant difference between the follow-up and pre-test values (MD = -0.131, SE = 0.040, $p < 0.001$). However, there was also a statistically significant decrease from post-test to follow-up (MD = 0.282, SE = 0.038, $p < 0.00$). This implies that while there was an increment in attitude immediately after intervention, there was a decrease later on (at the follow-up stage). The overall implications of the data indicate that while integrating the concept of CGIs into Geography classes affects students' attitudes toward CGIs from pre-test to post-test values, there is a significant decline in attitude at the follow-up level.

Table 4.26: Bonferroni-Adjusted Pairwise Comparisons of Mean Scores for Students' Attitude of CGIs Across Time Points

Pairwise Comparisons						
Comparisons		Mean difference	Std.Error	*Sig.*[b]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.413*	.043	.000	-.517	-.338
	3	-.131*	.040	.004	-.227	-.034
2	1	.413	.043	.000	.308	.517
	3	.282*	.038	.000	.189	.375
3	1	.131	.040	.004	.034	.227
	2	-.282*	.038	.000	-.375	-.189

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni

1 = pre-test, 2, post-test, 3 follow-up test

In the interview, the students also mentioned that they have varying attitudes towards the CGIs introduced in their classrooms. While one student felt that his attitudes were increased after the integration of CGIs, the remaining five students believed that their attitudes towards the CGIs varied before and after the implementation. For example, the first student stated this like this:

> My teacher's ways of presenting CGIs in the classroom alter my behaviors in relation to CGIs. He made me more conscious of contemporary geographic issues and has a positive mindset towards solving problems related to contemporary geographic issues. Before I learned about climate change, for example, I was not very conscious about the causes and consequences of climate change. However, recently, I feel each human activity has its own contribution to climate change. I connected classroom learning with real events in my local area, for example, linking a flood to deforestation or climate change.

This student's response indicates that effective CGI instruction can enhance his critical thinking skills and his consciousness of CGIs and related problems. This, in turn, makes him connect lessons to real-life issues, foster personal responsibility, and develop a proactive mind-set towards

each CGI. This, on the other hand, implies that effective CGI education can build both cognitive and behavioural competencies essential for addressing challenges related to these issues.

The other student also reported that when the teacher integrated CGIs in the classroom, he became conscious to some extent of CGIs. However, through time, his consciousness of CGIs has decreased. In his actual words, he states:

> When I started to learn about different forms of contemporary geographic issues, I became conscious of the CGIs and their consequences on human beings and the environment. For example, when I learned about climate change and its impact on the globe, I became more concerned about the animals, human beings, and biodiversity affected by climate change. However, later, after the instruction is completed, my sensitivity is decreased as no one raises these issues.

From this student response, it is inferred that although the change in his attitude towards CGIs becomes visible on a particular instruction of CGIs or making an intervention, his attitude after the intervention may not be sustained. These changes also imply that his attitudes toward CGIs using a particular instructional method are not taking root in students' thinking of CGIs and related problems. Rather, it comes from his emotions about a particular classroom event.

4.4.2.4 The Effects of Integration of Contemporary Geographic Issues on Students' Intention to Act on Contemporary Geographic Issues

As can be observed from the table below, the results from the mean scores indicate an increasing trend among students in acting on CGIs immediately after the integration of CGIs. For instance, from the pre-test, the mean score on students' intention to act on CGIs stood at 3.19, and then improved slightly to 3.24 during the post-test. Nevertheless, there was an observed drop in the intention to act on CGIs from the post-test to the follow-up test (3.24 to 3.39). The implication here is that although the trend indicated that students were keen on acting on CGIs immediately after they learned CGIs, there was a reduction in intention to act after some time interval. The repeated measures ANOVA results also indicate that there was a statistically significant effect of integrating CGIs across time on students' intention to act on CGIs $F(1.336, 239.113) = 10.935$, $p < .001$. This means that students' intention scores differed significantly across the time points measured.

Table 4.27: Results of Repeated Measures ANOVA on Students' Intention to Act on CGIs Across Time Points

Group	N	M	SD	SS	*df*	MS	*F*	*Sig.*	η^2
Pre-test	180	3.19	.5771	3.824	1.336	2.863	10.935	.000	.058
Post-test	180	3.25	.4391						
Follow-up test	180	3.39	.4838						
Error/Residuals				62.602	239.113	.262			

Keys: N = number of participants, M = mean score, SD = standard deviation, SS = Sum of Squares, MS = mean score, F = F-statistic, Sig = P-value, η^2 = Partial Eta Square.

The result of the pair-wise comparison test indicated that there was no significant change in students' intention to act on CGIs immediately after the intervention (from pre-test to post-test) with MD = -0.055, SE = 0.050, $p > .05$. In contrast, the results showed that there was a significant increase in intention to act from pre-test to the follow-up with $MD = -0.199$, SE = 0.053, $p < 0.001$. Additionally, it was found that students' intention to act increased significantly from the post-test to the follow-up test.

Table 4.28: Bonferroni-Adjusted Pairwise Comparisons of Mean Scores for Intention to Act on CGIs across Time Points

Pairwise Comparisons						
Comparison		Mean differences	Std. Error	Sig.[b]	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.055	.050	.828	-.175	.06
	3	-.199	.053	.001	-.326	-.073
2	1	.055	.050	.828	-.066	.175
	3	-.145*	.024	.000	-.203	-.087
3	1	.199	.053	.001	.073	.326
	2	.145	.024	.000	.087	.203

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni

1 = pre-test, 2, post-test, 3 follow-up test

In light of their development of intention to act on CGIs, different students have also forwarded different views during the interview. While two students felt that they had improved their intention to act on CGIs since they had repeatedly learned about different types of CGIs, others felt that their intention to act on CGIs had not increased much. For example, from the first group of students, student 4 stated the following.

> When I learned about contemporary geographic issues, I felt that I had developed a positive environmental attitude. Now, I feel that I can involve in practical activities to make my environment safe from the impacts of climate change, population growth, or any environmental pollution activities. I have a good intention to participate in environmental protection. I have a great desire to protect my environment together with other stakeholders.

In the same view, Student 6 states, "My intention to act on problems related to contemporary geographic issues is continuing. If I get opportunities, I will be very glad to solve problems related to CGIs."

From these reflections of the students, it can be inferred that learning about CGI can foster students' intention to take part in real-world environmental actions. This implies that the integration not only increased their awareness but also their motivation to be actively involved in practical solutions.

On the other hand, four students indicated that their intention to address issues related to CGIs did not show substantial improvement. For example, Student 1 stated:

> When I learned about the different types of contemporary geographic issues in the classroom, I was very impressed and eager to solve problems related to contemporary geographic issues. For example, I was very interested in planting trees and cleaning the environment. I was also eager to participate in clubs related to environmental issues. However, after the classroom or after taking exams, my intention to act is decreased as no one initiates me to act on the issues.

In the same vein, student 2 also added:

> When I learned about the different types of contemporary geographic issues, particularly when the teacher presents the lesson impressively using real situations, I felt that I should participate to avoid or minimize problems related to the CGIs. However, later my inten-

> tion to act on the issues decreases as there is no initiator or opportunities to participate, for example, in environmental protection. Thus, if you ask me my present intention of acting on contemporary geographic issues, it is not the same as the previous one.

One student elaborated that when he first started learning more about CGIs, he was fairly aware and concerned about taking action regarding the CGIs. He even raised his ideas with his family and friends about how these problems could be resolved. However, after completing his Grade 10 education, his level of concern about these issues reduced considerably. Regarding this, he states, "You know, when I learned about CGIs, particularly population growth and climate change, I became conscious and intended to act against problems related to these issues. I talk with my siblings and neighbours about these issues and related problems. I was interested in solving problems, but I could not do it by myself. Now, however, my consciousness and interest are reduced."

The above mentioned students' verbatim expressions imply that while early exposure to CGIs can spark awareness and an initial willingness to act on CGIs, motivation may not be sustained without continued reinforcement. The decline in concern after integration also indicates that students' intentions to address CGI-related problems can fade when education is not accompanied by practical engagement opportunities, community support, or pathways to translate knowledge into action. This underscores the need for schools to provide ongoing, structured activities such as projects or service-learning initiatives that help maintain students' commitment and transform awareness into long-term behavioral change.

In general, the assessment based on the response of the participants towards the willingness to undertake actions regarding the CGI or related problems indicated that the integration of CGIs in Geography classrooms has not brought behavioral change. This conclusion has its own pedagogical implications. To make the integration of CGIs truly effective, educational approaches must move beyond knowledge transfer. They should prioritize the cultivation of sustained behavioral change. To do this, there is a need for continuous engagement strategies, experiential learning opportunities, and a supportive environment that empowers students to incorporate sustainability practices into their daily lives consistently.

4.5 Predictive Factors Affecting Integration of Contemporary Geographic Issues

The last research question of this study aimed to investigate the determinants of integrating CGIs in geography lessons. As indicated in Table 4.29, the overall ANOVA result of the regression model indicates that teacher and material-related factors, such as teacher training, teachers literacy on CGIs, teacher qualification, teaching experience, and material quality, collectively have a strong and statistically significant effect on the overall integration of CGIs $F(5, 66) = 108.523$, $p < .001$. This implies that improvements in these areas play a great role in the effective integration of CGIs in Geography classrooms.

Table 4.29: Overall ANOVA Results for the Multiple Regression Model for Predicting Overall Integration of Contemporary Geographic Issues

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.039	5	3.608	108.523	.000[b]
	Residual	2.194	66	.033		
	Total	20.233	71			

a. Dependent Variable: overall integration

b. Predictors: (Constant), Teacher training, Teacher literacy of CGIs, Teacher qualification, Material quality, Teaching experience

To determine how each teacher-related factor and material quality independently influence the integration of CGIs into classroom instruction, the investigator analyzed the *Coefficients Table* of the multiple regression output as indicated in Table 4. 30. In addition, the data obtained from the in-depth interview was also used to support this larger quantitative data.

Table 4.30: Each Predictive Factors Effect on Integration of CGIs in Geography **C**lasses

Multiple Regression						
Model	USC		SC	r	t	Sig.
	Beta(β)	SE	Beta(β)			
(Constant)	.099	.291			.341	.734
Material quality	.366	.071	.334	.536	5.164	.000
Teaching experience	.031	.012	.257	.312	2.665	.010
Teachers' literacy CGIs	.023	.060	.017	.048	.389	.699
Teacher qualification	.066	.048	.059	.167	1.373	.174
Teacher training	.304	.061	.423	.525	5.014	.000

Keys: USC = Unstandardized Coefficients, SE = Standardized error, SCB = Standardized Coeffiecient, r = correlation, t = t-value

As presented in Table 4.30, the result of the multiple regression model analysis showed that material quality is a significant predictor for teachers' performance in integrating CGIs ($r = .536$, $p < 0.001$). Its unstandardized coefficient ($\beta = 0.366$) showed that for each single unit increase in material quality, teachers' performance in integrating CGIs is predicted to increase by 0.366 units for every unit, when all other factors are held constant. This signifies that material quality is linked to a 36.6% chance of predicting teachers' performance in integrating CGIs in class. Furthermore, its standardized coefficient value ($\beta = 0.334$) disclosed that material quality positively and moderately influences integration performance.

The data obtained from the in-depth interview also indicates that a lower quality of the textbook affected their integration. The respondents reported that although the Grade 9 and 10 Geography textbooks explicitly address CGIs, which are prevalent at the local and global levels, they are largely focused on isolated facts, which restrict opportunities to foster students' attitudes, problem-solving skills and their engagement with these issues and taking action problems related to CGIs. The textbooks include a few up-to-date instructional resources such as case studies and hands-on activities. The absence of other resources, such as multimedia materials and videos, limits teachers' ability to effectively present and explore global issues in the classroom. For example, Teacher 3 states, " As I see Grade 9 and 10 textbooks, the materials incorporate issues

which are relevant at the local and global levels. However, the way these issues are presented in the textbook is not appropriate. The textbooks focus on fragmentary facts of CGIs rather than focusing on issues that promote critical thinking and problem-solving skills. Thus, I face problems in presenting the CGIs in the way of developing students' attitudes and problem-solving abilities of CGIs." Teacher 2 also describes, "Although the textbooks present the common CGIs, the materials present these issues with a limitation of relating them to local realities that the society faces."

More importantly, teachers reported that Geography textbooks do not provide appropriate teaching methods. As a result, they cannot use effective instructional strategies that align with the specific nature and demands of different CGI topics. This, in turn, makes them employ the traditional lecture methods, which are less effective for engaging students with dynamic geographic issues. For example, Teacher 3 expressed, "When I teach different CGIs both in Grades 9 and 10, the textbook has limited instructional guidance. As a result, I usually employ the conventional methods such as the lecture method, group discussion, and sometimes demonstration."

From the findings of the above quantitative and qualitative data, it is inferred that textbook barriers affect the integration of CGIs in geography classrooms. Although the textbooks for Grades 9 and 10 include relevant CGI topics and fragmented facts over coherent ones, the textbooks lack problem-based content and offer limited resources and instructional guidance. This makes it difficult for teachers to foster students' problem-solving skills and relate content to local realities.

The results also show that teaching experience is another factor that has a statistically significant effect on teachers' performance regarding the integration of CGIs in Geography classrooms (r = .312, $p < 0.001$). In addition, from the regression analysis, for every year of teaching experience, there will be an expected increment of 0.031 units in overall integration of CGIs. This implies that teaching experience explains 3.1 % of the variations in teachers' performance for the integration of CGIs in class. Using the standard regression coefficient, teaching experience is presented to impact on integration performance by 0.257, showing a moderate positive impact of teaching experience on integration performance. This means that teaching experience and teacher integration performance both positively correlate.

The teachers during the interview also reported that their lack of experience in addressing CGIs and integrating them into classroom instruction affected their ability to teach the topics of CGIs effectively. They reported that they have faced difficulties in promoting students' problem-solving skills of CGIs as they have not got opportunities to share experiences with colleagues. This, in turn, makes them feel ill-prepared to facilitate classroom discussions or engage students in activities such as debates, case studies, or inquiry-based tasks related to CGIs. In light of this, Teacher 3 in Grade 10 states, "I have not had much experience from other teachers on how to incorporate contemporary geographic issues in geography lessons. Except in formal education, I have not taken any training on how to integrate these issues into geography lessons. Thus, now I face problems with how to engage students in realistic situations used to enhance their problem-solving skills."

In the same vein, Teacher 4 states:

> Lack of experience affects my teaching of contemporary geographic issues in Geography class. I consider myself well-informed about the subject matter, including current geographic issues. However, I have limited experience with selecting appropriate teaching methods used to deliver CGI content; therefore, I often struggle in selecting appropriate teaching methods and engaging students with enquiry-based activities. Thus, I mainly employ lecture-based teaching methods.

Teacher 6 also believes that he has little experience in aligning content items of CGIs with learning objectives. In addition, he believes that he has little experience in reviewing the content of textbooks and incorporating students' interests and local, current global events. In this respect, he said, "I am not experienced in aligning the objectives of the lesson with content items of CGIs."

The study also found that professional training programs on CGI significantly predict teachers' ability to integrate CGI into the classroom setting($r = .525$, $p < 0.001$). The unstandardized coefficient ($\beta = 0.304$), further showed that with each increase in the unit for teacher training, the overall integration of CGI is predicted to increase by 0.304 units. This indicates how teacher training is crucial in improving the performance of teachers in integrating CGI. Moreover, the standardized coefficient ($\beta = 0.423$) implies that teacher training has the highest effect among all predictors of integrating CGIs in Geography classrooms.

The respondents during the interview also stated that a lack of professional training has affected their instructional practices in different ways. The teachers reported that they have not got adequate professional training progammes after they completed their formal education. They emphasized that they need training, particularly on their pedagogy and digital literacy. Out of the 12 participants interviewed, four explicitly acknowledged that they face limitations in their instructional methods and in using digital devices/technology in their classrooms, as they have not kept their professional knowledge and digital literacy up to date in response to newly introduced content in the geography curriculum. For this reason, they struggled to apply suitable teaching strategies for specific topics of CGI. In this regard, Teacher 4 stated, "If I had received adequate training on how to teach contemporary geographic issues in the classroom, I would have been more capable of integrating them effectively into geography lessons." Likewise, Teacher 3 added, "My teaching is largely lecture-based because I have not received sufficient training on how to apply diverse methods for each CGI."

Teaching of CGIs also requires access to current information, interactive tools, and multimedia resources, which are more available in digital technologies and internet access. However, data from the key informant interviews revealed that geography teachers face two challenges in accessing current information, interactive tools, and multimedia resources. These include a lack of training about how to use digital literacy and limited/no access to the internet. Consequently, teachers struggle to utilize relevant online topics related to the current environmental problems. Besides their low literacy on digital devices, poor or non-existent internet access also prevents them from incorporating real-time data, visual simulations, or other engaging digital materials that can enrich students' understanding of CGIs. In light of this, Teacher 1 in Grade 9 states, "To integrate contemporary geographic issues effectively in Geography lessons, it requires current information related to each CGI. However, without internet access and digital skills, it is impossible to obtain current data and integrate these issues into the classroom. I usually face this problem." Teacher 2 in Grade 10 also states, "In my school, there is no internet access. Moreover, there are no adequate digital devices such as desktops or laptops. So I am unable to integrate contemporary geographic issues effectively."

In the same vein, Teacher 6 states the following:

> When I provide classroom discussions for my learners, most of these discussions get disconnected from current events that happened at either a local or a global context because I cannot download these events from the internet. This means that I just stick the issues from the Geography textbook, which may not be the latest information, examples, and sources to the local contexts. Since I cannot use current internet sources, I cannot engage the students in the current environmental problems, analysis of real information, and improvement of problem-solving skills.

In conclusion, the evidence from the interview data analysis confirms that a lack of digital literacy/internet accessibility impacts teachers' ability to integrate CGIs in the classroom effectively. These issues also limit the ability of Geography teachers to provide students with valuable, up-to-date, and exciting forms of instruction. These limitations further impact students' abilities of solving environmental problems, as well as being provided with insights from a global perspective. Therefore, the findings imply that addressing these barriers through targeted professional training programs and accessing digital devices and the internet helps teachers to enhance their integration of CGIs.

On the other hand, the study found that two variables, teachers' qualifications and literacy of CGIs, were not significant predictors of teachers' integration of CGIs. Regarding teacher qualification, it was found that it was not a significant predictor of teacher integration($r = 0.046$, $p > 0.05$). The unstandardized coefficient (B = 0.066) also indicates that for each one-unit increase in teacher qualification, the overall integration is predicted to increase by only 0.066, which is a very weak predictor. The standardized coefficient ($\beta = 0.059$) also indicates that teacher qualification has a minimal effect on teachers' ability to integrate CGIs into their lessons.

As indicated in Table 4.30, teacher literacy of CGIs was not also considered a significant predictor of teachers' integration performance of CGIs(r = .167, $p > 0.05$). The unstandardized coefficient ($\beta = 0.023$) also indicates that for each one-unit increase in literacy CGIs, teachers' integration performance is increased by 0.023. The unstandardized coefficient (Beta = 0.017) also implied that there is a very weak effect of literacy of CGIs on teachers' integration performance**.**

The evidence from the interview data further shows that there are other challenges Geography teachers face in incorporating CGI into classroom practices. These include a shortage of time, lack of institutional support, and lack of teacher motivation.

It was found that three of the twelve teachers reported that time constraints prevented them from fulfilling the implementation of CGIs in geography classes. Due to the overload and the fullness of topics in Grade 9 and 10 Geography textbooks, they cannot cover all the topics within the set academic calendar. This causes them to hurry through the topics, leaving very little time for implementing activities requiring critical thinking, discussion, and problem-solving. In light of this, Teacher 1 states, "Shortage of time is the other problem. If you see the Grade 9 and 10 Geography textbooks, lots of topics are covered. So, more time is required to cover those topics."

Teacher 2, who has taught in Grade 10, also adds:

> Although the topics included in the Geography textbooks are numerous, the Geography subject is allocated relatively few periods per week compared to other subjects. This limited instructional time forces me to prioritize coverage of the syllabus over in-depth exploration of topics. More importantly, contemporary geographic issues, by their nature, require extended classroom discussions, student engagement in different activities, and investigations. With tight schedules, thus, we Geography teachers often resort to surface-level teaching just to complete the curriculum, leaving little or no time for meaningful engagement with contemporary geographic issues.

Lack of institutional support also affects teachers' integration of CGIs in the classrooms. In relation to this, teachers claimed that educational institutions, such as the Ministry of Education, educational bureaus, educational offices, and schools, do not provide internet access and digital devices that are used to access up-to-date materials, maps, atlases, multimedia audio and video materials related to CGIs, which enable teachers to design engaging and realistic lessons. Due to these problems, teachers cannot design engaging and realistic lessons that make the lessons of CGIs context-specific. In this regard, Teacher 1 states:

> The contemporary geographic issues stated in Grade 9 and 10 Geography textbooks, such as soil erosion, environmental pollution, or climate change, can be best explored through digital resources such as satellite imagery, online databases, or videos. However, there are not enough computers or internet access at school to provide the main sources of information used to illustrate these complex topics and relate them to local contexts. As a result, I cannot refer to these resources or integrate those issues into the Geography lessons.

The results also showed that a lack of institutional motivation among high-performing teachers affected their general efficacy in incorporating CGIs in Geography classrooms effectively. The

interview data indicated that three teachers were influenced by a lack of institutional motivation in terms of incentives and getting opportunities for further education.

As Teacher 2 expressed:

> Lack of motivation also affected me. As you know, motivations and professional commitment are related to each other, and both are important for ensuring the effective implementation of CGIs in the classroom by geography teachers. Without proper motivation, support, and stimulation from the concerned authorities, I personally feel that no one can serve effectively. I personally feel that I have not received proper motivation or professional development from the concerned bodies. This, in turn, affects my implementation of CGIs in geography class.

In the same vein, Teacher 4 states:

> Lack of motivation is the other factor. In our school, responsible bodies do not make any distinctions between those teachers who are performing well and those who are not performing well. This level of reluctance affects my willingness to take instructional risks, try out new instructional methods, or address locally sensitive issues in geography lessons. However, if I were motivated through various kinds of incentives, I feel that I would explore and implement innovative teaching strategies in my geography classes.

On the basis of the results discussed above, it was concluded that variables, including the quality of teaching materials, teaching experience, teacher training programs, absence of organizational support, and time constraints, have played an important role in determining teachers' effectiveness in integrating CGIs in their classroom teaching. These variables proved to have an important effect on the performance of teachers in this context. Two different variables, including teachers' literacy related to CGIs and their academic qualifications, on the other hand, did not have a statistically significant effect on the dependent variable in this study. From these findings, it could be concluded that merely possessing general knowledge about CGIs does not necessarily translate CGIs into effective classroom integration. Thus, practical aspects, including the presence of effective teaching materials, having good teaching experience, attending teacher training programs, teacher motivation, and organizational support, are of much greater significance to improve teachers' effectiveness in integrating CGIs in their classroom instruction.

CHAPTER FIVE: DISCUSSION OF RESULTS

Introduction

This part first presents the results of the current study, such as how well CGIs and content items, learning objectives and instructional activities of CGIs are integrated into Grade 9 and 10 Geography textbooks and in classroom practices, the effects of the integration of CGIs on students' perceived literacy of CGIs and the determinants of integrating CGIs in Geography lessons. Then, it presents these findings by comparing and contrasting them with those of the findings of previous research.

5. 1 Integration of Contemporary Geographic Issues in Grade 9 and 10 Geography Textbooks

The integration of CGIs in the school curricula and classroom practices includes several things. These include the integration of prevalent CGIs, instructional learning outcomes of CGIs, content items, and the instructional activities of CGIs.

5.1.1 Integration of Prevalent Contemporary Geographic Issues in Grade 9 and 10 Geography Textbooks

When school curricula integrate different types of CGIs, they should incorporate CGIs that are prevalent at the global and local levels to help students understand the complex nature of the issues and their interconnection in the environment and human life. Integrating these issues, particularly into Geography textbooks, also makes classroom learning reflect real-world challenges and prepares learners to think critically about local and global problems (Gebrekidan & Gebremedhin, 2024; UNESCO, 2024). In the same vein, it was found that Grade 9 and Grade 10 Geography textbooks incorporate CGIs that are prevalent at the local and global levels, and affect our world in different ways. These issues include population growth, environmental degra-

dation, deforestation, soil erosion, climate change, unplanned urbanization, and environmental pollution. Data from in-depth interviews further confirmed that the textbooks primarily feature CGIs that are prevalent at both local and global levels. The participants also reported that this integration helped them understand each type of CGI, particularly the nature, causes, consequences, and solutions of each CGI.

Although both Grade 9 and 10 textbooks incorporate CGIs that are relevant at local and global scales, the textbooks occupy a small fraction of CGIs from the total number of geographic topics incorporated in both textbooks. For example, of the 275 content items in the Grade 9 textbook, only 16 (7.2%) address CGIs, while the remaining 92.8% focus on other geographic topics. Similarly, in the Grade 10 textbook, just 14(9.6%) out of 146 content items pertain to CGIs.

Although the textbooks incorporate a relatively small proportion of CGIs compared to other geographic topics, the findings align with the principles established by various international conferences on integrating environmental issues into school curricula. For instance, the inclusion of prevalent CGIs such as population growth, environmental degradation, pollution, deforestation, soil erosion, climate change, unplanned urbanization, and environmental pollution reflects the guidance provided by the 1972 Stockholm Conference. This Conference emphasized that when issues related to our environment are integrated into the school curricula, they should be relevant to the local and global contexts and address multiple dimensions of environmental issues that cultivate environmentally literate and responsible citizens capable of engaging with pressing environmental challenges (UN, 1973).

These research findings also tend to support the guidelines outlined by the Belgrade Charter in the year 1975 and the Tbilisi Declaration in the year 1977. The guidelines are pertinent to the objectives of integrating environmental issues in the curricula. The guidelines indicate that when environmental issues are incorporated into school curricula, they must be relevant at both the local and global dimensions. The guidelines also indicate that the environmental issues incorporated into curricula must encourage the learners to link them to the reality of their situations. The guidelines also indicate that when issues related to our environment are integrated, they should focus on the development of the learners' awareness, knowledge, attitude, as well as participation in environmental issues.

The research findings are also in agreement with the principles outlined by Palmer (1998). Palmer(1998), a well-known proponent of the theories of environmental education, recommends that the content of environmental education should be relevant at the local and global dimensions. Therefore, the content should be based on the current environmental issues that ensure the development of the learners in their knowledge, skills, attirudes and participation in the current environmental issues.

More importantly, the findings of the study align with the guidelines of integrating climate change and other environmental issues developed by the Ethiopian Environment, Forest, and Climate Change Commission (EFCCC, 2020), and the Education Sector Development Program VI(ESDP VI) developed by the Ethiopian Ministry of Education(MoE, 2021). For example, the EFCCC framework emphasizes that climate change, which is the most prevalent CGI at the local and global level, and related environmental issues should be integrated into core subjects such as Environmental Science, Biology, Social Studies, and Geography, as these subjects are considered most suitable for delivering climate-related content. The EFCCC guidelines further recommend that when these curricula incorporate climate change and its related issues, both local and global perspectives on climate change should be incorporated to enable students to understand its global and local impacts.

The findings of this study are also consistent with results reported in studies conducted across different countries. Previous studies generally indicate that CGIs integrated in the school curricula are relevant to local and global contexts and in the way these issues enhance students' understanding of environmental challenges at multiple levels. For instance, Alkaher and Carmi (2019) found that population growth is integrated into school curricula in a way that enhances students' understanding of the phenomenon of population growth and its environmental impacts. Mandal and Mete (2023) also explored how the inclusion of population growth in curricula promotes students' awareness of its effects on the environment, family life, and overall well-being. Antonelli (2022) investigated the effects of integrating rapid population growth into the school curricula. The findings reveal that integrating rapid population growth in the school curricula contributes to loss of biodiversity and resource depletion. Furthermore, research by

Dodson et al. (2020) reported that population growth and climate change have a positive relationship, and integrating these issues in school curricula helps educators better prepare their stu-

dents to address these critical issues and ultimately cultivate an informed generation that is capable of engaging with and mitigating the complex problems our world faces today.

Additionally, previous authors have also pointed out that deforestation is an important pressing environmental issue that can be integrated into the school curricula and classrooms. For example, Ardoin et al. (2018) stated that deforestation, which causes substantial loss of biodiversity and land degradation, should be integrated into the school curricula. By integrating this issue into school curricula, it is possible to raise awareness among the students and take collective actions towards dealing with environmental crises.

At the local level, Dalelo(2011) also assessed the extent to which and ways in which global climate change is addressed in the Geography curriculum guides and students' textbooks for Ethiopian schools. The findings reveal that the curriculum guides for geography provide a huge opportunity to integrate issues related to global climate change. However, it was found that issues related to the politics of global climate change, the impact of human actions on climate change, and solutions to climate change have been given less emphasis, although more emphasis is given to the causes of climate change. Dezso(2024) also conducted climate change education in Afar, Ethiopia. The findings revealed that there is an integration of climate change in the school curricula, and teachers have a positive attitude towards climate change education. However, the findings reveal that there are barriers to the full integration of climate change, particularly in articulating details about climate change, preparing context-sensitive curriculum, and strengthening curricula activities that can help students grasp concepts. Gebrekidan(2024), reviewing several published and unpublished papers, governmental documents, reports, policies, curricula, and sample surveys of different governmental sectors, explored the mainstreaming and the effectiveness of environmental education in the curriculum and governmental structure. The findings reveal that although an attempt is made to integrate environmental education at each school level, the integration was not very effective.

The findings of both current and previous studies indicate that integrating CGIs, which are prevalent at the local and global levels, into geography curricula carries significant implications. It promotes geography instruction, a shift away from rote memorization toward more participatory and active learning approaches. These ways of learning, on the other hand, foster deeper engagement and situate learning within real-world contexts. It also makes classroom instruction

more meaningful and relevant to students' lives. This, in turn, prepares them to engage with complex environmental issues and contribute to solving the social and ecological impacts that affect both human communities and the natural environment.

5.1.2 Integration of Learning Objectives of Contemporary Geographic Issues in Geography Textbooks

The findings indicate that most learning objectives in both Grade 9 and 10 textbooks emphasize other content areas rather than CGIs. Out of a total of 79 learning objectives integrated in the Grade 9 Geography textbook, only 14 (17.7%) were directly related to CGIs. Among these, the majority (71.43%) focused on enhancing students' cognitive knowledge of the issues. However, the textbook included only a small percentage of objectives aimed at enhancing students' attitudes (7.12%) and their skills in solving problems related to CGIs (21.45%). However, none of the objectives talk about students' participation in CGIs.

The data obtained from document analysis of the Grade 10 Geography textbook also indicates that the textbook does not integrate learning objectives that enhance students' knowledge, attitudes and skills in a balanced way. Objectives aimed at enhancing students' knowledge of CGIs are incorporated more frequently than those focused on developing students' skills and attitudes toward these issues. For instance, 75% of the objectives integrated in the textbook focus on enhancing students' knowledge of CGIs, while only 12.75% and 12.75% of the objectives are directed toward improving students' attitudes and skills of CGIs, respectively. The in-depth interview data also revealed that the objectives related to each CGI primarily emphasize students' understanding of the concepts, causes, consequences, and solutions of the issues, with less emphasis on developing attitudes and skills. However, none of the objectives focus on students' participation in solving problems related to CGIs.

The findings of this study are in line with some of the findings of previous local studies. For example, Gebrekidan and Gebremedhin (2024), in their comparative study, found that the integration of environmental education in Indian and Tanzanian school curricula focuses on education about, in and for the environment in a balanced way, while less emphasis is given on education in and for the environment in Ethiopian primary school curricula. Balcha et al (2025) also assessed the status of environmental education in promoting students' sustainable environmental

management competencies in Asella secondary schools. The findings reveal that there is a gap in presenting environmental education in the way it enhances students' environmental management practices. Federal Democratic Republic of Ethiopia(n.d.) also reported that the Climate Change Education strategy(2017–2030) has limited engagement of schools because of a lack of skilled human resources and a deficiency in institutional capacity.

These findings are also consistent with studies conducted in other African countries. For instance, Rwobusiisi et al. (2021) found that while climate change is integrated into school curricula across many African nations, the focus is predominantly on enhancing students' knowledge. In contrast, relatively little emphasis is placed on developing learners' skills and attitudes. Eustance et al. (2022) examined the balance between students' knowledge, awareness, attitudes, and practices concerning environmental issues that are integrated in the school curricula. Their study revealed that although secondary school students demonstrated high levels of awareness and knowledge, their attitudes and actual environmental practices were significantly weaker. Therefore, it was recommended that school curricula should strive to balance learning experiences to equally promote environmental knowledge, foster positive attitudes, and encourage responsible environmental behaviours.

On the other hand, the findings of the current study stand in contrast to the declarations made during various international conferences on environmental education and sustainable development held over the years. Notably, the Berlin Declaration on Education for Sustainable Development (2022) emphasizes that since educational institutions, curriculum developers, and educators have a crucial responsibility in pressing global challenges, such as the climate change, biodiversity loss, pollution, and other environmental threats, they are called upon to equip students not only with theoretical knowledge but also with the practical skills, values, and attitudes necessary to become proactive agents of change in addressing these critical global issues by preparing materials that develop students' knowledge, attitudes, skills and willingness to act on environmental problems.

The findings are also inconsistent with earlier international conferences, which have consistently underscored the importance of a holistic approach to integrate environmental issues to enhance students' knowledge acquisition with the development of attitudes, skills, and behaviours necessary for environmental stewardship. For example, the findings are in contrast with the frame-

work of the Stockholm Conference held in 1972, which laid the groundwork for integrating environmental issues in school curricula at a global level. The findings of the present study are also not in line with the Tbilisi Intergovernmental Conference (1977), which outlines the essential components and objectives, such as knowledge, attitudes, skills, and participation, of environmental issues that should be incorporated in the school curricula(UNESCO-UNEP, 1978).

Similarly, the Moscow Conference (1987**)** emphasized the need for integrating environmental issues and training programs that develop students' cognitive, affective, and psychomotor domains of environmental education, while the Thessaloniki Conference (1997) reaffirmed the interdependence of environmental education and sustainable development. In both of these conferences, it was stressed that curricula should be designed not only to convey environmental knowledge but also to foster critical thinking, problem-solving skills, ethical values, and a commitment to sustainable practices (UNESCO, 1997).

In conclusion, although the findings of this study are in line with the findings of some of the local and global studies, they are in contrast to the guidelines and international declarations that focus on the integration of CGIs. The current research findings indicate that existing curricular practices still place more emphasis on cognitive knowledge, with limited attention to developing learners' attitudes, skills, and environmental behaviours. This, on the other hand, leads students to fail to develop the values, motivation, and practical competencies used to take responsible actions towards environmental problems such as population growth, climate change, deforestation, land degradation, environmental pollution or unplanned urbanization. This, in turn, makes students merely focus on recalling information, rather than being willing to apply it to real-world contexts. On the other hand, in different conferences, it has been framed that the main objectives of integrating environmental issues in the school curricula are to cultivate informed and active citizens rather than learners limited to rote memorization.

The disalignment of the findings of the current study with the frameworks developed in the different conferences implies that the Grade 9 and 10 Geography textbooks presented the objectives of CGIs in an imbalanced way. Thus, they need to call for a more holistic and action-oriented approach to integrate CGIs related to our environment. These findings also have environmental implications. When students are disengaged with CGIs that directly impact their lives and communities, their environmental literacy is diminished. This, in turn, makes learners mis-

understand the nature of environmental challenges, struggle to apply critical thinking and problem-solving abilities, and find context-specific solutions to environmental problems.

5. 1. 3 Content Items Integrated in Grades 9 and 10 Geography Textbooks

Based on data from document analysis and key informant interviews, it was found that both Grade 9 and Grade 10 Geography textbooks include content items related to various themes of CGIs. However, the proportion of content items devoted to each CGI is relatively low compared to other topics in the textbooks. For instance, in the Grade 9 textbook, only 16 out of 275 content items (7.2%) are related to CGIs, while the remaining 92.8% focus on other content items. Similarly, in the Grade 10 textbook, just 14 out of 146 content items (9.6%) address CGIs. Most of the content items integrated under each CGI are the nature, definitions, causes, consequences and solutions of the CGIs. These findings are in contrast with previous research findings. For example, by reviewing recent literature, Morales-Aguilar et al (2025) found that climate change education in the Geography and science curricula focuses on both the scientific understanding of the nature, causes, consequences and solutions of climate change and on the social, political and ethical dimensions of climate change. IPCC(2023) also reported that climate change education not only focuses on scientific understanding but also incorporates other content related to social and political aspects.

Although content items incorporated under each CGI are a few in number, the definitions, trends, causes, consequences, and solutions of CGIs presented under each CGI are comprehensively addressed in the textbooks. For example, in the Grade 9 textbook, under the topic “environmental pollution, the textbook defines this issue multiple times (5 times), lists the different causes (15 times) and consequences (2 times) of environmental pollution. Under the CGIs such as “deforestation” and “soil erosion”, content items such as definitions, causes, consequences, and solutions are presented in detail, in greater depth, and with detailed explanations than the other CGIs. Under the topic “deforestation”, for example, definitions, causes, consequences, and solutions are mentioned 2, 9, 14, and 16 times, respectively, across the textbook (p. 180-185). Similarly, under the topic “soil erosion”, the textbook includes different content items such as definitions, causes, consequences, and solutions of soil erosion 1, 21, 9, and 11 times, respectively. Detailed explanations are also provided on definitions, causes, consequences, and solu-

tions of soil erosion, thereby enhancing students' knowledge and understanding of the topic (p.174-176).

Similarly, in Grade 10, under the topic of "climate change", the textbook includes one definition, three causes, and twenty-five consequences of climate change (p. 44). Under the topic population growth, two definitions, eight causes, and six consequences are integrated (p. 146). The final CGI covered in the Grade 10 textbook is "coastal pollution", for which the textbook presents thirteen causes, three consequences, and eleven solutions (p. 168–169).

The findings obtained from the analysis of Grade 9 and 10 textbooks are in line with the findings of previous studies. As the findings of this study, the findings of other previous studies reveal that the causes, consequences, and solutions of different environmental challenges are integrated at various degree in the school curricula. For example, Meehan et al(2018) found that from the different USA high school curricula, while about half of them indicate the main causes of climate change(human activities), most curricula include climatic information, and a few focus on the impacts of climate change. On the other hand, most curricula offer a narrow set of strategies for responding to climate change. Oluwatobi et al (2019) explored the integration of climate change, one of the most prevalent CGIs, in the upper basic schools of the Gambia. The findings reveal that there are gaps in the curriculum materials in relation to climate change integration. For example, they showed an insufficient explanation of the impacts of climate change on human health and an omission of climate change impacts on the ecosystem.

The data gathered from the interviewees (Geography teachers) also show that the content items discussed in relation to each CGI of each grade level are presented in a way which effectively promotes students' understanding of the respective CGIs. Most of the interviewees reported that the textbooks used in Geography are mainly intended to teach students' cognitive understanding of the CGIs, focusing on the definition, causes, consequences, and solutions of each CGI. However, little emphasis is given on attitude change, skills development, and active participation of students to address the issue of each CGI, among students.

These findings both align with and diverge from results reported in previous studies conducted in local and global contexts. In the Ethiopian context, for example, Dlelo(2012) explored the inclusion of loss of biodiversity and climate change in biology curricula for Ethiopian schools.

The findings revealed that the revised curriculum guides have integrated a number of issues that could enhance students' understanding of the significance of biodiversity and other related factors, and the consequences of loss of biodiversity in all grade-level biology curricula except grade 11. In contrast, Dalelo(2012) found that climate change and its related issues were given few opportunities in biology curriculum guides. Husen (2018) also found that environmental education objectives(education about, in, and for) are not sufficiently integrated in primary school subjects as currently planned and intended to be taught. The finding confirmed that though components of environmental education are believed to be integrated into every subject of the school curriculum, their integration is found to be different in coverage and approach by subjects and cycle, and more emphasis is given to education *about* the environment. Gebrekidan and Gebremedhin (2024) also found that while environmental education about, in, and for the environment is practiced in India and Tanzania, education in and for the environmenta are practiced at the lower level in Ethiopian primary school curricula.

In the global context, Loubser and Simalumba(2016) also explored the integration and implementation of environmental issues in Grade 8-10 Geography curricula. The findings reveal that the materials deliver adequate knowledge about the environmental issues, and educators gained sufficient knowledge and understanding of environmental concepts and issues. On the other hand, Loubser and Simalumba's (2016) studies revealed that teachers often lacked the pedagogical tools and conceptual clarity needed to foster learners' willingness to engage in environmental action or to adopt responsible behaviours toward the environment.

On the other hand, other studies, for instance, Nzobonimpa and Zamroni (2017) found that the curricula materials that integrate population growth are prepared in a way that enhances students' understanding, skills, attitudes, and participation, thereby meeting their educational needs. Nafisah et al (2022) also found that environmental pollution is effectively integrated into social studies curricula in Indonesia, contributing to the development of students' overall competencies related to environmental issues.

As discussed above, the current and most of the previous findings indicate that there is a persistent gap in the integration of content items of CGIs within school curricula. It was found that curricular materials tend to prioritize content aimed at increasing students' theoretical knowledge while giving insufficient attention to elements that foster practical skills, positive

attitudes, and a willingness to address CGI-related problems. This indicates that the mismatch between theoretical knowledge and action-oriented learning experiences limits students' opportunities to engage critically with real-life environmental challenges. These findings carry significant pedagogical implications in that there is a need for curriculum developers and material writers to redesign and integrate CGI content in ways that simultaneously enhance students' knowledge, skills, attitudes, and active participation in addressing contemporary geographic issues.

5. 1. 4 Integration of Instructional Activities in the Textbooks

The data obtained from document analysis show that a variety of activities used to engage students in different tasks are integrated in Grade 9 and 10 Geography textbooks. In the Grade 9 Geography textbook, about 140 specific activities have been developed. From these specific activities found in the Grade 9 textbook, 41(29.29%) are related to CGIs. From these activities, most of them focus on the tasks used to develop students' cognitive understanding of the CGIs presented in the textbook. However, only a limited number of activities aim to enhance students' attitudes and skills related to these important issues.

In the same vein, the Grade 10 Geography textbook incorporates a substantial number of activities. Under the general 53 different activities, there are 93 specific activities designed to encourage students to perform various tasks. Of these activities, 26 (27.38%) focused on CGIs. From these 26 activities, most of them (65.38%) are centred on asking students to retrieve factual information, such as definitions, causes, consequences, and solutions of CGIs integrated in the textbook(climate change, population growth, coastal pollution, and environmental pollution). In contrast, only a few activities (23.10% and 11.52%), respectively are aimed at developing students' attitudes and skills toward CGIs. Furthermore, the activities in the textbook do not encourage students to participate in community-based or school-wide initiatives that promote students ' pro-environmental behaviour and skills used to solve problems related to CGIs. These findings differ somewhat from those of previous studies.

The data obtained from in-depth interviews with grade 9 and 10 students and teachers indicated that most of the activities designed in the students' textbook focus on developing students' understanding of CGIs integrated in the textbook. On the other hand, they reported that the text-

books give very limited space for activities aimed at enhancing students' problem-solving skills, attitudes, and participation in CGIs. Most of the teachers and students reported that while most of the activities integrated in the textbook appear effective in delivering basic knowledge about CGIs, the textbook falls short in incorporating activities that foster the essential competencies required for meaningful engagement with the challenges related to CGIs. Specifically, the activities do not encourage students to actively engage with global issues, nor do they promote values-based learning, problem-solving abilities, or a sense of personal responsibility toward CGIs.

In general, the findings of document analysis and interviews reveal that students' textbooks have inadequacies with regard to dealing with and focusing on all four crucial outcomes of integrating CGIs in the Geography textbooks: knowledge attainment, attitude development, skill development, and participation. The teachers pointed out that most of the activities integrated in the textbooks have an overwhelming focus on enabling students to understand concepts related to CGIs(their definitions, causes, consequences, and solutions). However, the textbooks seem to give low emphasis on equipping students with the skills necessary for addressing all related problems. Very little attention seems to be directed towards fostering positive attitudes and values of performance based on factors of concern for the environment and critical thinking.

While the findings of the current study are in line with a few of the local and global studies, they are in contrast with many of the previous global research findings. In the local context, Husen (2018) found that most of the educational activities integrated in the school curricula on topics related to environmental issues were centred on providing theoretical knowledge and factual information about environmental issues. Balcha et al (2025) also found that there is a gap in presenting environmental education in both the school curricula and classroom practices. The activities and exercises in textbooks and teacher guides lacked practicality, and they focus on teaching education about the environment with little attention to ‘in’ and ‘for’ the environment.

On the other hand, the findings of the current study are in contrast with the findings of previous studies conducted outside Ethiopia. For example, Kibga et al (2021) reported that student textbooks are extensively enriched with hands-on activities designed to spark curiosity about getting knowledge and foster skill development on the subject matter. These activities also make the learning process more interactive and attractive, which in turn motivates students to take an ac-

tive role in exploring the subject matter. Shutaleva (2023) also added that the activities found in students' textbooks typically include questions designed to enhance students' knowledge, attitudes, and skills in a balanced manner. Such activities help learners develop problem-solving skills and a positive attitude toward environmental issues.

Nasif et al (2022) also found that when social studies teachers integrate environmental pollution in social studies classes, they employ relevant learning activities that enhance students' environmental pollution knowledge and problem-solving skills. These activities encourage the learners to integrate the classroom lesson into the surrounding environment. Suryawati(2020) reported that the presence of problem-based learning activities in curriculum materials trains students to identify, analyze, evaluate, and take action on environmental problems. The findings also reveal that the presence of problem-based activities in students' worksheets has a significant effect on improving student learning outcomes related to environmental issues.

Harris (2021) also found that the students' textbook integrates several forest-school activities. The presence of these regular and repeated activities in a natural setting at forest school makes children become more relaxed, have fun, and connect with nature. Moreover, they help learners develop an affinity for the location, a sense of ownership and concern for the forest school setting, and a desire to protect it.

From the above findings, it is possible to conclude that the inclusion of activities related to CGIs in geography textbooks ought to be approached with careful consideration and intentional design. These activities should not be designed to transmit only factual or conceptual knowledge in isolation. Rather, they should be structured in a way that holistically supports the development of four interrelated environmental education outcomes: knowledge, attitudes, skills, and participation.

5.2 Geography Teachers' Levels of Integrating Contemporary Geographic Issues in Geography Classroom Practices

It is strongly emphasized that teachers play a pivotal role in effectively integrating CGIs into classroom instruction (Evans & Acton, 2021; Stanišić & Maksić, 2014; UNESCO, 2024). By designing or adopting engaging learning activities, teachers can make lessons more dynamic,

enable students to critically analyze the causes, impacts, and possible solutions to these issues, foster positive attitudes, and enhance problem-solving skills (Evans & Acton; Stanišić & Maksić; UNESCO, 2024). Although the effective integration of CGIs includes several things, this study focused on teachers' levels of integrating CGIs to enhance students' literacy of CGIs(knowledge, skills, attitudes and participations), their use of appropriate teaching methods and uses of a variety of sources of information. Thus, under this sub-topic of the discussion part, these three important things are discussed by comparing and contrasting with the findings of previous local and global studies.

5. 2. 1 Teachers' Levels of Integration to Enhance Students' Literacy of Contemporary Geographic Issues

As the data collected through survey questionnaires and classroom observations indicated, teachers' overall level of integrating CGIs into classroom instruction to enhance students' literacy of CGIs was at a lower level. The grand mean score of 2.91, which falls below the average mean of 3, indicates that teachers are incorporating CGIs insufficiently. The one-sample t-test further reveals that there was a significant mean difference between the expected mean and the observed mean of integrating components of CGIs in the classroom (t = -4.53, df = 71, p < 0.001). Data was also collected to examine which components of CGIs(knowledge, skills, attitude, and participation) teachers give more emphasis during integration.

5.2.1.1 Teachers' Levels of Integration to Enhance Students' Knowledge of Contemporary Geographic Issues

As the mean score indicated, teachers placed the greatest emphasis on enhancing students' knowledge and understanding of CGIs (M = 4.06). Results from the one-sample t-test further revealed that there was a statistically significant difference between the expected and observed mean scores for the integration of knowledge-related elements of CGIs in the classroom (t = 35.2, df = 71, p < 0.001). The observation data also confirms that teachers devote most of their time to making the students more familiar with the nature, causes, consequences, and solutions of CGIs. They gave detailed information about the nature, causes, consequences, and solutions of different CGIs, such as soil erosion, deforestation, environmental degradation, population growth, unplanned urbanization, climate change, and environmental pollution, integrated in the textbooks.

As the findings of the quantitative and qualitative data indicated, Geography teachers play a great role in shaping students' understanding of CGIs. Teachers mainly integrate CGIs to make the students have good knowledge and awareness regarding real-world issues that arise from the complex interaction between humans and their environments. The findings of this study are in line with some of the findings of the local studies. For example, the Climate Change Education Strategy of Ethiopia (2017-2030) reported that teachers in Ethiopia most commonly teach *about* climate change, focusing on basic facts, causes, consequences and simple mitigation strategies. Similarly, Gugsa (2023) found that although teachers feel that environmental content is delivered on a hands-on, place-based approach to enhance students' skills and participations on environmental problems, they present the lesson on teacher-centered approach that focuses on delivering knowledge of environmental issues. Balcha (2025) also explored the status of environmental education in promoting students' sustainable environmental management abilities in Asella secondary schools, Oromia, Ethiopia. The findings reveal that teachers emphasized delivering knowledge with less emphasis on developing the problem-solving skills of students.

At the global level, Dalida (2018) also found that when teachers incorporate CGIs into their classroom instruction, they tend to allocate a significant portion of their teaching time to activities and discussions that primarily aim to strengthen students' knowledge and conceptual understanding of these issues. Teachers mostly concentrate on helping students grasp the key facts, definitions, patterns, and theoretical frameworks associated with contemporary geographical challenges.

However, other previous research results are to some extent different from the findings of the present study. For example, Allen-Taylor (2022) in Nigeria explored how integrating some current environmental issues, such as pollution, deforestation, and urban flooding in the school curricula materials and classrooms could help to develop the students' awareness and knowledge of their environment. The findings reveal that the integration of these CGIs does not enhance students' basic awareness and knowledge about pollution, land degradation, flooding, and deforestation. Oluwatobi et al (2019) also found that the curricula materials that integrate climate change have gaps in enhancing students' literacy of climate change. Even the material was inadequate to cover the causes, impacts, and solutions of climate change, so they cannot develop students' knowledge.

5.2.1.2 Teachers' Levels of Integration to Enhance Students' Problem-solving Skills of Contemporary Geographic Issues

The data obtained from the questionnaire and classroom observation revealed that Geography teachers' integration of CGIs to develop students' problem-solving skills was below average, with a mean score of 2.99. The results of the one-sample t-test also indicate that there was no statistically significant difference between the observed mean and the expected mean.

Classroom observation data further showed that the way Geography teachers presented CGIs to enhance students' problem-solving skills related to various types of CGIs was at a lower level. Only a few teachers were observed encouraging students to find their own solutions to CGI-related problems. These teachers also challenged the students to apply their knowledge and skills to address local CGIs. Moreover, it was observed that Geography teachers did not present each CGI in a manner of developing students' decision-making abilities, which helps students understand, analyze, and propose solutions to real-world environmental problems.

These findings are in line with those reported in both local and international studies. For example, in the local context, Hussen(2018) observed that curriculum materials and teachers place far greater emphasis on enhancing students' environmental knowledge than on equally fostering their problem-solving skills. His study further revealed that teachers give insufficient attention to providing students with direct experiences and practical engagement with environmental issues that provide opportunities for students to observe the natural world and cultivate environmental problem-solving skills. Balcha's (2025) study also reveals that teachers give less emphasis on developing students' problem-solving skills related to environmental problems when they present lessons related to environmental problems in the classrooms.

On the other hand, in the global context, Velempini(2016) found that when environmental issues are integrated in the classroom, teachers give equal emphasis to enhance students' environmental knowledge and problem-solving skills. To do this, teachers bring local environmental problems and real-life situations with guided discovery learning strategies. Other studies revealed that teachers and curriculum materials integrated CGIs aimed at enhancing students' problem-solving skills across different CGIs, although students' abilities to solve problems related to environmental issues remained very low(Putri et al., 2023). Putri et al (2023) also found that when

students are learning about the different types of environmental issues, they develop their environmental literacy, which in turn increases their problem-solving skills. However, the relationship between students' environmental literacy and their problem-solving ability is low. Yani et al (2025) found that when teachers employ the problem-based learning model in their classroom, they significantly improve their students' ability to solve environmental pollution problems. Finally, Gök and Boncukçu(2023) found that when teachers used problem-based instruction rather than curriculum-based instruction, they significantly enhanced students' problem-solving skills of environmental issues.

5. 2.1.3 Teachers' Levels of Integrating Contemporary Geographic Issues to Develop Students' Attitudes toward Contemporary Geographic Issues

As the data obtained from surveys and key informant interviews indicated, Geography teachers' level of integrating CGIs to enhance students' attitude was at a lower level. The mean score of attitude (M = 2.27) indicates that teachers' effort to integrate CGIs to enhance their students' attitude was very low, which is below average. The one-sample t-test results also indicate that Geography teachers' effort to enhance students' attitude to CGIs is significantly below average (t = -27.9, df = 71, $p < 0.001$). This indicates that they do not adequately address key things that cultivate students' attitudes. That is, teachers are unable to address the severity of CGIs, the continuous impact of human beings on the environment, and the urgency of taking action in the way they enhance students' sensitivity or consciousness about CGIs. The findings also show that teachers seldom incorporate real-world case studies, illustrations and experiential learning strategies that show the severity of CGIs and enhance students' concerns about the environment.

The observation data also indicated that Geography teachers did not structure their lessons in a way to foster students' emotional sensitivity/consciousness toward CGIs. The majority of observed teachers failed to illustrate different techniques that enhance students' attitudes. For example, they did not show how specific local communities are impacted by environmental challenges such as soil erosion, deforestation, or pollution. Most teachers also did not utilize visual aids or striking statistics that could arouse students' interest to engage in problems related to CGIs. The observation data further indicated that Geography teachers did not actively promote students' sense of personal responsibility for protecting the environment, either now or in the future.

In essence, the low mean score, the one-sample t-test result, and the classroom observation data indicate that integration of CGIs fails to cultivate students' positive attitude toward CGIs. This low level of integration also reflects that there is a serious gap in teachers' understanding of how affective learning outcomes, such as empathy, concern, and civic responsibility about our environment, are addressed in geography education. This shortfall, in turn, limits students' emotional engagement, moral development, and motivation to take action on problems related to CGIs.

The findings of this study are in line with some of the findings of previous local and global studies. In the local context, Balcha et al (2025) found that there was a gap in attitude and skills in teaching environmental education. The findings reveal that teachers give low emphasis on education *in* and *for* the environment when they teach environmental education in the classroom. In the global context, Kimori(2017) found that although teachers acknowledge the importance of teaching environmental issues in their classrooms, they continue to struggle with conceptual and attitudinal barriers to the successful integration of environmental topics in physics.

In contrast to this study, the findings of previous studies show that teachers integrate CGIs in the ways they develop students' attitudes towards CGIs. For example, Dalida et al (2018) found that teachers integrate community-based activities in the classroom to develop students' positive environmental attitudes, their sense of responsibility, and accountability for environmental problems. Sukarjita et al (2015) also found that when teachers use the MOTORIC teaching model, which stands for motivation, observation, talking, orientation, reinforcement, implementation, and confirmation, they develop high school students' environmental attitudes and sensitivity to environmental issues and related problems.

5. 2. 1. 4 Teachers' Levels of Integrating Contemporary Geographic Issues to Develop Students' Participation in Contemporary Geographic Issues

The findings of this study reveal that teachers' efforts to integrate CGIs in ways that encourage student action toward environmental problems are limited. The mean score of 2.32, which is below the average mean score of 3, indicates that teachers do not adequately develop students' intention to act on environmental problems. A one-sample t-test further confirmed there is a statistically significant gap between the observed and expected scores on students' attention to acting on problems related to CGIs($t = 18.37$, $df = 71$, $p < 0.001$). The observation data also revealed

that most teachers did not present CGIs in ways that cultivate students' intention to take action on related issues. They rarely encouraged students to assume active roles in addressing CGI-related problems or employed activities such as field trips, project-based learning, or real-life applications designed to strengthen students' willingness to act. Furthermore, teachers provided few opportunities for students to engage in authentic problem-solving tasks, analyze real-world CGI scenarios requiring decision-making, and propose their own solutions to local environmental challenges.

These findings are in line with some of the findings of the local and global studies. In the local context, Gebeyehu et al (2024) found that primary school students have a generally unfavourable attitude towards energy generation and climate change, although the students are good at pro-energy and environmental practices. In the global context, Putri et al (2023) found that the lack of appropriate integration of environmental problems in the classroom influenced the pro-environmental behaviour of students. Putri et al (2023) also showed that even though a larger group of teachers showed positive attitudes towards protecting the environment, only a smaller percentage had actively changed their behaviours towards a pro-environmental one.

5. 2. 2 Teachers' Use of Appropriate Teaching Methods in Integrating Contemporary Geographic Issues in the Classroom

Using appropriate teaching methods in integrating CGIs helps students connect theory to real-world challenges, develop critical thinking and problem-solving skills, engage emotionally and ethically with global and local issues, and build the motivation and capacity to take informed action (Putri et al, 2023). However, as the Friedman Rank Mean Order Test indicated, Geography teachers predominantly rely on conventional instructional strategies, such as the lecture method (*RM* = 12.89), group discussion (*RM* = 10.10), brainstorming (*RM* = 9.59), demonstration (*RM* =7.97), and concept maps (*RM* = 7. 95) when incorporating CGIs into Geography lessons. From the different types of teaching methods, it was found that the lecture method was the most commonly used approach by Geography teachers. Group discussion, brainstorming, demonstration, and concept maps, as put in their order, were the next teaching methods employed by most teachers.

However, several other teaching methods, such as experiential learning, problem-based learning, realia, reflection, role plays, community engagement, simulations, and case studies, were found to be used at relatively low rates. The consistently low rank means and median values across these methods indicate that they are generally underutilized by teachers. The Friedman Rank Order Test also revealed that there is a statistically significant difference in the frequency with which Geography teachers employed these teaching methods in teaching CGIs $\chi^2(13, 72), = 304.653$, $p < .001$. Observation data also indicate that teachers predominantly rely on conventional teaching methods such as brainstorming, group discussion, lecturing, questioning and answering, and demonstration. Only a few teachers use interactive methods such as student reflection, simulations, and case studies. Even these teachers used them very rarely, particularly when the textbooks provide the case study scenarios.

The findings of this study are in line with the findings of many of the previous local and global studies. In the local context, Balcha et al (2025) found that there was a gap in teaching approaches of environmental education. Geography teachers did not use hands-on, practical and interactive methods to enhance students' problem-solving skills of environmental problems. At the global level, Thenga et al (2020) explored Geography teachers' pedagogical practices for integrating climate change in the classroom. The findings revealed that although Geography teachers attempted to integrate climate change in the classrooms, most of them did not sufficiently integrate it as they did not implement the learner-centred teaching methods. Thenga et al (2020) also found that teachers did not use appropriate teaching methods because of the rigid structure of the curriculum, where teachers were focusing on satisfying its demands instead of innovating and changing their teaching approaches. El Batri(2022) also found that the most commonly used teaching methods to teach environmental themes were teacher-centred, particularly oral methods (dialogue and demonstration methods). Teachers failed to employ learner-centred activities such as working in small groups and the discovery method. Only a few teachers used laboratory experiments and ICT-based demonstrations when they taught environmental themes. KOÇ(2018) also found that problem-based geography instructions have not found much room in Turkey when geographic issues are taught, as they initially have difficulty getting accustomed to problem-based geography instruction. Finally, Febriasari and Supriatna (2017) found that teachers' use of interactive and inquiry-based instruction methods, such as experiential learning, reflection, community engagement, simulations, and case studies, was found to be

used at relatively low rates, although they feel that using these methods enhances students' literacy of environmental issues.

On the other hand, other global studies indicate that teachers employ different types of learner-centred, interactive, and problem-solving methods when they integrate different types of CGIs in the classrooms. For example, Özalemdar's (2021) findings indicate that teachers use different kinds of active learning methods in integrating current environmental issues in biology class for grade 10 students in Turkey, so these methods improved the levels of students' environmental attitudes. Oluwatobi et al (2019) also add that teachers employed resource-based learning, demonstration method, discussion method, field trip, excursion, sightseeing, role play, project work, experimental/exploration learning, and research for knowledge to enhance students' attitude, and skills development towards climate change. Furthermore, Gallay et al(2022) found that when teachers use collective inquiry and place-based action, they teach climate change effectively, and these methods provide opportunities to students to engage in real-life situations, enhance their critical thinking ability, emotional resilience, and their consciousness about climate change.

Other studies also found that teachers employed problem-based instruction when they integrated different types of CGIs in the classroom. For instance, Suryawati(2020) explored the implementation of local environmental problem-based instruction to strengthen university students' environmental literacy in Indonesia. The findings reveal that teachers' use of local environment-problem-based learning enhances students' environmental literacy, particularly in identifying, analyzing, evaluating, and solving problems related to local and global environmental issues. Gök and Boncukçu(2023) also found that teachers employed problem-based learning more than curriculum-based instruction as they believed that it was more effective in developing students' environmental attitudes. Thus, teachers asserted that problem-based learning significantly enhanced students' problem-solving skills.

Sims et al (2020) explored environmental and sustainability education pedagogical approaches in pre-service teacher education in Canada. The findings reveal that teacher educators used community-based learning teaching methods and visiting local and naturally built environments to make the lesson clearer and vivid. It was also found that these pedagogical strategies facilitate relationship building with communities and places, develop love and empathy for the environ-

ment, and promote curiosity and problem-solving skills necessary to pose critical questions related to environmental problems.

Findings of both this study and existing research work indicated there is a marked difference in teaching approaches used by teachers. While some teachers confine their teaching largely to traditional approaches, including lecturing, others use more dynamic approaches, including interactive, inquiry, and problem-solving learning and teaching. Teachers who are largely traditional in their modes of teaching face difficulties in inducting learning and literary awareness among their students regarding CGIs and, more specifically, in changing their attitudes, solving problems, and acting upon the CGIs. The restricted use of interactive and problem-solving learning teaching approaches in integrating the CGIs indicates that teachers are focusing on transmitting factual knowledge about CGIs rather than developing students' ability to critically analyze these issues, engage empathetically, and take informed action. On the other hand, those teachers who use more dynamic approaches, including interactive, inquiry, and problem-based learning and teaching, are more successful in improving the knowledge, skill, attitudes, and action-taking approaches among the students regarding the issues and concerns raised by the CGIs.

5.2.3 Teachers' Uses of a Variety of Sources of Information in In Integrating Contemporary Geographic Issues in the Classroom

The findings of the current study reveal that Geography teachers did not use a variety of sources of information equally when they integrate CGIs in the classroom. As the rank mean and median values indicated, textbooks received the highest rating to be used as a source of information by teachers (*MR* =15.18, *M* = 4.00)**.** Next to students' textbooks, Geography teachers occasionally employed other information sources such as television, environmental organizations, outdoor activities, training, social media, and recorded materials in their classroom instruction. In contrast, other sources such as newspapers, recently published articles, magazines, local areas, radio, fieldwork, and GIS received the lowest mean ranks and were used by most teachers very rarely. The median value for each of these sources is 2, which indicates that teachers rarely utilize these sources of information when teaching CGIs. The Friedman Rank Order Test also revealed that there is a statistically significant difference in teachers' use of the different sources of information in teaching CGIs in Geography classrooms $\chi^2(15, 72) = 417.351$, $p < .001$. The pairwise comparison test also indicated that there was a significant mean difference in the frequency of

teachers' use between each source of information. This indicates that teachers do not use all information sources equally, and there are substantial variations in their usage patterns. The observation data also reveal that teachers' use of up-to-date sources of information, such as the internet, social media, radio, and recently published materials, was notably rare, except for three teachers who utilized the internet, YouTube, and multimedia sources as sources of information while they taught soil erosion.

Classroom observation data further demonstrated that most Geography teachers mainly employed textbooks as their main source of information to integrate CGIs into Geography classrooms. They used content items, examples, graphs, and tables found in the textbooks to support both their instruction and enhance students' understanding of each issue.

The findings of the current study are similar to and in contrast with the findings of previous studies. Locally, Gebrekidan(2024) found that since there is a lack of resources, teachers could not use a variety of sources of information when they integrate environmental components in the classroom. Globally, Nafisah et al (2020) found that social studies teachers usually used materials on environmental pollution as a source of social studies learning to enhance students' core and basic competencies in environmental pollution classes. As the findings of the present study, Nafisah (2022) also found that social studies teachers did not utilize real events, such as the physical or social environment, as a source of learning, although there were various local events, for example, environmental pollutions, global warming, and climate change. Parnes(2025) also found that many USA teachers feel unprepared to teach about climate change because of a lack of effective resources to implement it in the classroom.

In relation to the use of technology as a source of information, Dogru(2015) found that primary school environmental science teachers are not yet ready to integrate Information Communication Technology into their classrooms due to several obstacles, like the unavailability of infrastructure, equipment, and web-based resources in the classrooms. Teachers also lacked competence in service training and technical support, as well as a lack of technological pedagogical content knowledge on how to integrate ICTs into the teaching and learning of environmental science.

Değirmenci1 and Ilter(2017) also found that the majority of resources teachers used to integrate current events in geography class were the internet (web-based sources) and TV news. In addition, teachers employed newspapers, science publications, and magazines at the moderate level.

On the other hand, the least frequently used sources of information were videos, smart boards, textbooks, documentaries, observations, and movies.

As the findings of the present and previous studies indicated, while most studies indicated that teachers did not use different information sources that help students develop their knowledge, problem-solving skills, environmental concerns/sensitivity, and willingness to act on real-world challenges of CGIs, others did not use up-to-date sources of information. This implies that schools should therefore adequately prepare teachers to be equipped with skills used to select appropriate sources of information for their teaching.

5. 3 Effects of Integrating Contemporary Geographic Issues on Students' Perceived Literacy of Contemporary Geographic Issues

The effectiveness of teachers' integration of CGIs on students' literacy of CGIs (students' knowledge, skills, attitudes, and intentions to act) was assessed across three time points (pre-test, post-test, and follow-up test). To do this, the data obtained from the survey questionnaire, which consisted of items about students' perceived knowledge, perceived skills, attitudes, and intention to act on problems related to CGIs, was used. To support this larger quantitative data, the data obtained from the in-depth interview was used.

5.3.1 Effects of Integration on Students' Perceived Knowledge of Contemporary Geographic Issues

The findings reveal that Grade 9 students have shown overall improvement of CGIs across two time points(from pre-test to post-test). However, this overall improvement showed a marked decline in the follow-up test. The result of the repeated measure of ANOVA also revealed that students' literacy of CGIs is significantly changed across the three time points(pre-test, post-test, and follow-up test $F(1.669, 278.806) = 60.507$, $p < .001$. That is, while it significantly increased from pre-test to post-test, it significantly decreased from post-test to follow-up test. The decline of students' literacy at the follow-up stage implies that the improvement is not sustained, highlighting a lack of durability in the intervention's effect.

Grade 10 students have also shown a slight improvement in their knowledge of CGIs. The findings reveal that there is student knowledge improvement from the pre-test ($M = 3.55$) to the

post-test (M = 3.59), indicating an improvement in students' understanding of CGIs following the instructional intervention. However, at the follow-up stage, the mean score declined to 3.37, indicating a reduction in knowledge retention over time. The repeated measure of ANOVA result also shows that there is a statistically significant difference in scores of students' perceived knowledge across time points F (1.79, 320.39) = 12.62, $p < .001$. The pairwise comparison tests show that no significant difference is found between the pre-test and post-test results(MD = –0.045, SE = 0.038, p = 0.05), indicating that students' perceived knowledge does not change immediately after integration. However, a statistically significant decline was observed between pre-test and post-test results (Time 1 and Time 3) (MD = 0.175, SE = 0.052, $p< .001$). The comparison between post-test and follow-up test also shows a significant mean score difference (MD = 0.220, SE = 0.048, $p < 0.001$), confirming a further decline from the immediate post-integration stage to the follow-up assessment. This pattern of results implies that while teachers' integration has a short-term positive impact on students' knowledge, it may not have been sufficient to ensure long-term retention.

The data obtained from key informant interviews also indicated that students' perceived knowledge of CGIs before and after the intervention varies both in content and expression. While five of the respondents reported they feel their overall perceived knowledge of CGIs has increased after they have learned about different CGIs, such as climate change, population growth, and environmental pollution, they acknowledged that their understanding of CGIs fluctuated across different stages of the learning process.

As the findings in the two grade levels indicated, it is inferred that although students' perceived knowledge on CGIs increased from the pre-test to the post-test, the increment is not sustained. These findings are in contrast with some of the local and global studies. For example, Gebrekidan(2024) found that one of the objectives of environmental education(knowledge of the environment) is not addressed to the students at each grade level sufficiently, as environmental education is not covered sufficiently and in-depth in the school curricula and classroom practices, although environmental education is relatively integrated in geography and biology subjects. In contrast, Gebeyehu et al (2025) found that the students had a very good awareness and knowledge about principles underlying the generation and use of energy.

Regarding this, other global studies have also similar and contrasting findings. Analyzing 105 studies, Ardoin et al (2025) found that integrating environmental education has a positive effect on students' learning outcomes of the environment. Bozdogan etal (2016) also found that students' awareness and knowledge of environmental issues were very high, although their knowledge and awareness vary in each type of environmental issue and gender. Suralin (2023) also found that results from pre- and post-intervention assessments indicated significant improvements in environmental knowledge and awareness among students. In this study, the findings displayed a deeper understanding of environmental issues such as climate change, biodiversity loss, and pollution growth.

5.3.2 Effects of Integrating CGIs on Students' Problem-solving Skills of Contemporary Geographic Issues

In relation to students' improvement of perceived skills of CGIs of Grade 9 students, it was found that there was a slight improvement from the pre-test to post-test (Time 1 to Time 2), with a noticeable decline in the follow-up stage (Time 3). The repeated measure of ANOVA result also shows that there was a significant change of scores across the time points at $F(1.48, 247.17) = 34.81$, $p < .001$). The pairwise comparison results also showed no significant difference between pre-test to post-test($MD = –0.051$, $SE = 0.042$, $p > .05$). However, a significant decline was observed between pre-test and follow-up test(MD = –0.226, $SE = 0.023$, $p < .001$). Furthermore, the comparison between Time 2 and Time 3 revealed an additional significant decline in perceived skills of CGIs ($MD = –0.277$, $SE = 0.038$, $p < .001$).

On the other hand, the data obtained from the key informant interviews showed two contradictory ideas. While two of the key informants responded that they felt that they had improved their skills in solving problems related to CGIs, the other four respondents reported that they felt unprepared to solve problems related to CGIs. These respondents also felt that the lack of developing skills used to solve problems related to CGIs occurred due to a lack of engagement in real-life situations, limited technological skills, and restricted access to information sources.

The data obtained from Grade 10 students also shows that students' perceived skills related to CGIs increased from the pre-test to the post-test and from the pre-test to the follow-up test. On the other hand, it was observed that there was a decline in students' perceived skills from the

post-test to follow up test. The analysis of repeated measures of ANOVA also revealed there is a significant change in students' perceived skills across time F (1.859, 332.813) = 57.12, $p < .001$. The pairwise comparison results show that the post-test scores were significantly higher than pre-test scores (MD = 0.419, $p < .001$). However, scores declined significantly from the post-test to the follow-up (MD = 0.203, $p < .001$). This pattern indicates that while integrating CGIs into classroom instruction initially enhanced students' problem-solving skills, the effect was not sustained over time. That is, the intervention produced short-term gains, but these gains diminished in the absence of continued reinforcement or extended practice.

These findings are similar and contrast with the findings of previous local and global research. Locally, Gebremedin(2025) found that the practical and problem-based approach of integrating environmental education is low at all levels of Ethiopian schools. As a result, students' problem-solving skills on environmental issues are at a lower level. Balcha(2025) also found that secondary school students' sustainable environmental management capabilities are at a lower level. On the other hand, Rimba and Rastati (2023) found that the inclusion of environmental problems in senior high school classes of Indonesia enhances students' ability to solve environmental problems, and there is a tendency for students to understand, identify, and formulate solutions to environmental problems.

5.3.3 Effects of Integrating Contemporary Geographic Issues on Students' Attitudes toward Contemporary Geographic Issues

In relation to students' attitude, it was found that Grade 9 students' attitude on CGIs and related problems was raised from the pre-test to the post-test. However, there was a drop at follow-up. The repeated measure of ANOVA also revealed that students' attitude score across time is statistically significant at $F($1.36, 226.23) = 307.35, $p < .001$. However, the pairwise comparison results indicate that the increase in students' attitude was short-lived and unsustainable. The statistically significant improvement was observed from pre-test to the post-test (MD = –0.876, SE = 0.049, $p < 0.001$), suggesting that students became more sensitive/conscious to CGIs following the intervention. However, this effect did not persist over time because the comparison between before integration (Time 1) and the follow-up stage (Time 3) showed no significant difference (MD = –0.023, SE = 0.023, p >.05), and there is also a significant decline of students' attitude between post-test(Time 2) and post-test(Time 3) (MD = 0.853, SE = 0.044, p<

0.001). This implies that the integration of CGIs in Geography lessons has short-term effects, which are not sustained.

In the same vein, responses from key informants about their improvement of CGIs are varied. Half of the respondents reported that there is a consistent increase in their attitude to specific CGIs, noting that they can identify local issues, heightened concern, and a stronger willingness to respond to the local issues. In contrast, the other half indicated that their sensitivity rises only occasionally, particularly when their teachers use concrete examples and link the CGIs to their local contexts.

The effects of the intervention on Grade 10 students' attitudes toward CGIs were also observed. The findings reveal that although the improvement of students' attitude to CGIs was not fully sustained, some progress was observed. The mean score showed modest gains from the pre-test to the post-test, followed by a decline from the post-test to the follow-up test. Repeated measures ANOVA analysis also confirmed that students' attitude scores changed significantly across the three time points $F(2, 358) = 54.034$, $p < .001$. To identify at which time point students' attitude score is increased/ declined, pairwise comparisons were employed. The pairwise comparison results revealed that post-test scores were significantly higher than both pre-test scores ($MD = -0.413$, $SE = 0.043$, $p < .05$) and follow-up scores ($MD = -0.282$, $SE = 0.038$, $p < .001$. Additionally, follow-up scores were significantly higher than pre-test scores ($MD = -0.131$, $SE = 0.040$, $p < .05$). However, a significant decline in attitude was observed from post-test to follow-up ($MD = 0.282$, $SE = 0.038$, $p < .001$). This implies that the effect of integration in improving students' attitude to CGIs is not sustained.

In the same vein, qualitative data indicate that students' improvement in attitude to CGIs is inconsistent. For instance, one student reported that his attitude to CGIs covered in the Grade 10 textbook increased through time as he learned these issues different times. On the other hand, the other five students noted that their attitude fluctuated before and after learning about the CGIs.

To summarize, the findings from quantitative and qualitative data imply that Grade 9 and 10 students' improvement in attitude to CGIs is uneven. While a few students show steady progress in their environmental attitude, others' attitude to CGIs and related problems varies across dif-

ferent times. The data obtained from most of the interviews indicate that students' attitudes to CGIs vary in different situations. For example, when their teachers present CGIs through practical, locally relevant instruction and use concrete examples in the classroom, their pro-environmental behavior increases. This, in turn, indicates that consistent exposure and active engagement with locally available CGIs and using different teaching strategies are essential for developing deeper and sustained sensitivity to CGIs. Moreover, from the findings, one can learn that teachers play a crucial role in fostering students' sensitivity to CGIs by contextualizing CGIs within their instruction.

The findings of this study are in line with the findings of previous local studies. For example, Gebremedin(2025) found that the attitudes and concerns of higher education students on environmental education are at a lower level. At the global level, Bozdogan et al(2016) found that although university students' attitude towards the environmental problems is not as high as their awareness, the integration of current environmental issues increased students' attitude and sensitivity towards environmental problems. The study also reveals that there is no environmental attitude difference among the students. Kemeç and Yalçin(2024) also explored university students' environmental sensitivity in Turkey. The findings revealed that although most of the participants did not take any courses or training regarding environmental issues such as climate change, global warming, loss of biodiversity, deforestation, and soil pollution, most university students have a high environmental sensitivity. Verlie et al (2020) also found that students commonly experienced feelings of overwhelmed, hopeless, anxious, angry, sad, and frustrated when engaging with ecological crises and climate change in the classroom. This sensitivity developed as the teachers employed different types of teaching strategies to engage their learners with their emotions, validating those emotions, and supporting students to navigate and respond to those emotions.

5.3.4 Effects of Integrating Contemporary Geographic Issues on Students' Intention to Act on Contemporary Geographic Issues

Finally, Grade 9 and 10 students' intention to act on CGIs was explored using both the quantitative and qualitative data. The quantitative data of Grade 9 students indicated that there was an improvement in students' intention of acting on CGIs from the pre-test to the post-test. However, there is a notable decline in intention to act from the post-test to the follow-up test. The re-

sults of repeated measures of ANOVA also revealed that there is a statistically significant effect of the integration F (1.23, 204.92) = 24.51, $p < .001$**)**, indicating that the mean scores significantly differed across the three time points. To examine at which point in time the change is significant, a pairwise comparison test was used. This test shows that there was no statistically significant difference between pre-test and post-test results (*MD* = -0.024, *SE* = 0.016, and $p > 0.05$**,** although a significant increase was observed from pre-test to the follow-up test with *MD* = -0.199, *SE* = 0.041**,** $p < 0.001$**.** Additionally, there was a statistically significant decline in students' intention of acting on CGIs from post-test to(Time 2) and follow-up test (Time 3) **(***MD* = -0.223**,** *SE* = 0.041, $p < 0.001$).

In Grade 10, it was also observed that there is a statistically significant effect of integrating CGIs across time on students' intention to act on CGIs $F(1.336, 239.113) = 10.935$, $p < .001$. The pair-wise comparison test also revealed that there was a significant increase in students' intention from pre-test to follow-up test with *MD* = -0.199, *SE* = 0.053, $p < 0.001$. However, there was no significant change in students' intention to act on CGIs from pre-test to post-test with MD = -0.055, *SE* = 0.050, $p > .05$. It was also found that students' intention to act decreased significantly from post-test to follow-up. This implies that a significant increase in intention to act was observed at the follow-up compared to the pre-test and post-test.

The findings derived from the assessment of Grade 9 and Grade 10 students demonstrate temporal variation in their intention to engage with problems of CGIs. Specifically, the data reveal a significant increase in intention-to-act scores from the pre-test to the post-test stage, indicating that the instructional intervention was initially effective in fostering students' willingness to address CGIs. However, this positive effect diminished at the follow-up assessment, where scores declined relative to the post-test results. This pattern indicates that the enhancement of students' intention to act was not sustained over time. The observed decline underscores the transient nature of the intervention's impact and points to the necessity of implementing reinforcement mechanisms or longitudinal strategies to maintain and consolidate students' commitment to addressing CGIs.

In light of this study, Breunig et al (2014) found that although environmental studies programs (ESPs) integrated in secondary schools have positive effects on students' environmental attitude, the students struggle with ways to meaningfully address environmental problems. Similarly,

Liao and Li (2019) explored the effects of environmental education on high school students' knowledge and intention toward the separation of solid waste on the campus. The findings indicate that integrating environmental pollution increases students' knowledge, positive attitudes, and intention to act on removing solid waste products. In contrast with these findings, Bergman (2015) found that with increasing years of learning experience about environmental issues, students demonstrated a slight increase in environmental appreciation and intention to act on CGIs related to environmental problems.

5.4 Predictive factors Affecting Integration of Contemporary Geographic Issues

The data obtained from quantitative and qualitative data showed that there were different determinants affecting teachers' integration of CGIs into Geography lessons. The overall ANOVA result of the regression model indicates that teacher and material-related factors, such as teacher training, teachers' literacy on CGIs, teacher qualification, teaching experience, and material quality, collectively have a strong and statistically significant effect on the overall integration of CGIs $F(5, 66) = 108.523$, $p < .001$.

To examine whether each predictor significantly influences integration separately**,** the coefficients table of regression model output was analyzed. The results depicted that material quality is a significant predictor that affected teachers' integration of CGIs in geography lessons($r = 0.536$, $p < 0.001$). The unstandardized coefficient ($B = 0.366$) also indicated that for every one-unit increase in material quality, teachers' performance in integrating CGIs is predicted to increase by 0.366 units, when all other factors remain constant. This shows that material quality has 36.6% power in predicting teachers' levels of integrating CGIs in the classroom.

An in-depth interview also demonstrated that material-related factors affected teachers' levels of integrating CGIs in the classroom. According to the interview data, it was found that although Grade 9 and 10 Geography textbooks include relevant CGI topics, they emphasize fragmented facts. However, the materials do not incorporate content sections that enhance students' skills, attitude and participation. The absence of clear guidance about which pedagogy is used for which content, and how they are applied in the classroom, affects the instructions of CGIs.

The findings of this study are in line with the findings of the previous local and global studies. Gebrehiwot and Bekele (2019) found that teachers could not integrate environmental education effectively as the curricula materials mostly prioritize topics of fragmented facts, and teachers prioritize topics outlined in textbooks and used in examinations. The findings also reveal that environmental education was maltreated as the materials failed to clearly demonstrate how components of environmental education aligned with lesson objectives.

At the global level, Nafisah et al(2020) and Parnes (2025) also stated that curriculum materials are the main sources of integrating CGIs in the classroom, and the lower-quality of curriculum materials affects the integration of CGIs in classroom practices. If the materials are overloaded with a variety of topics, rather than CGIs, it is difficult to cover the material. In the same vein, Benjamin and Adu (2019) found that the integration of environmental issues cannot be effective if the material lacks clear goals, content, and specific guidelines used to show how each environmental issue is integrated in the classroom. Similarly, Parnes(2025) found that many USA teachers feel unprepared to teach about climate change because of a lack of effective materials to implement climate change in the classroom. Boon (2021) also found that the presence of inaccurate and outdated environmental information in textbooks hinders teachers' practice of addressing climate change and biodiversity loss. In contrast to the present study, Sjöström et al(2020), reviewing several studies, found that textbooks with scientifically sound explanations of environmental issues enabled teachers to engage students in different types of activities, while materials of low quality resulted in fragmented instruction.

The findings also reveal that teaching experience is a statistically significant predictor of teachers' performance of integrating CGIs into geography lessons ($r = .312$, $p < 0.001$). The statistical analysis further reveals that for each additional year of teaching experience, the overall integration of CGIs is predicted to increase by 0.31 units. This shows that teaching experience accounts for 31% of the variation in teachers' ability to integrate CGIs in the classroom. The standardized coefficient ($\beta = 0.257$) also indicates that teaching experience has a moderate positive effect on integration performance. In other words, as teachers' teaching experience increases, so does their ability to integrate CGIs into their lessons.

The data obtained from interviewees also indicated that a lack of experience in integrating environmental issues in the classroom affected their integration. They noted that they have faced dif-

ficulties in promoting students' problem-solving skills and encouraging meaningful responses to CGI-related challenges because of a lack of sharing experiences with colleagues about how to present the issues in a way to develop students' problem-solving skills.

The findings of this study are in line with the findings of Villocido and Buyan's (2025) study. Villocido and Buyan(2025) found that the higher the teaching experience, the better for integrating environmental issues in the classroom. If teachers have higher experience, they accumulate good pedagogical knowledge and can have a deeper understanding of curriculum content, and greater confidence in adapting instructional materials. All these, in turn, help them integrate CGIs in the classroom effectively.

The findings of previous and current studies also imply that teaching experience can be used as a starting point in crafting more relevant means of integrating environmental issues into their lessons. It is also inferred that teachers' teaching experiences can serve as a valuable benchmark to make the integration of CGIs into the classrooms aimed at improving students' environmental literacy and solving problems related to CGIs. Thus, by aligning integration strategies with teachers' professional maturity, integration of CGI initiatives becomes more practical, context-sensitive, and sustainable in fostering environmental awareness among learners.

The study also revealed that participating in training programs related to CGIs is a significant predictor of teachers' levels of integrating CGIs into the classroom practices (r = .525, p < 0.001). The unstandardized coefficient (B = 0.304) also indicates that for each one-unit increase in teacher training, the overall integration of CGIs is predicted to increase by 0.304 units. Furthermore, the standardized coefficient (β= 0.423) shows that teacher training has the highest effect among all the predictors. The data obtained from in-depth interviews also indicated that a lack of participation in professional training programs related to the effective strategies for presenting CGIs in the classroom affected their integration. Thus, they often felt ill-prepared to facilitate classroom discussions or to engage students in activities such as debates, case studies, or inquiry-based tasks related to CGIs

The findings of this study also align with the previous studies conducted in Ethiopia and other contexts. Delelu et al (2025) found that since professional development training opportunities for geography teachers are inadequate, the quality and effectiveness of their integration of environmental education is at a lower level. Lack of teaching materials and professional develop-

ment opportunities further hindered effective curriculum implementation. Considering these findings, the study emphasizes the need for enhanced teacher training that focuses on strategic support to create a more conducive learning environment. Ibourk(2024) explored how learning about technologies develops elementary school teachers' climate change knowledge and their self-efficacy for teaching climate change in Florida, US. The findings reveal that getting training about how to use interactive visualizations of climate models and simulations of the greenhouse effect enriched the teachers' climate change knowledge and their self-efficacy in integrating climate change and its concepts into the classroom.

Other studies also show that some professional development programs across the USA, such as the EarthLabs Climate project (Ellins et al., 2014) and Project Learning Tree (Li et al., 2021), enhance teachers' levels of climate change and deforestation integration in the classroom. EarthLabs Climate project made teachers engage with online modules focusing on climate change using technology, which in turn helped them gain confidence in integrating climate change and related topics such as weather, the biosphere, and the carbon cycle (Ellins et al., 2014). In Turkish, it was also found that secondary school pre-service teachers' engagement in virtual learning through a web-based inquiry science environment significantly improved pre-service teachers' understanding of climate change and how to integrate it and related issues (Li et al., 2021).

In addition, the interview data reveal that geography teachers' integration of CGIs was affected by factors like time constraints, lack of up-to-date teaching resources, and limited institutional support. In relation to time constraints, four out of twelve teachers reported that a shortage of time hindered their ability to effectively integrate CGIs into Geography lessons. They stated that the bulkiness of textbooks and an excessive teaching workload prevented them from completing the syllabus within the given academic calendar. This, in turn, made teachers give little attention to in-depth exploration of CGIs, and include activities that require critical thinking, discussion, and problem-solving. In the same vein, Delelu et al (2025) found that limited time for lesson preparation affects the implementation of the Geography curriculum effectively.

Teachers also claimed that a lack of institutional support, such as a lack of provision of up-to-date teaching resources, limited involvement in developing a curriculum, and limited motivation given by the concerned bodies, affected their integration of CGIs in the classroom.

In relation to resources, teachers reported that a lack of internet access hinders them from using recent resources used to integrate CGIs in the classroom effectively. They cannot access up-to-date materials, multimedia audio and video materials related to CGIs. Finally, the findings revealed that a lack of institutional motivation for high-performing teachers negatively impacted their overall teaching effectiveness, including the integration of contemporary geographic issues in geography lessons. In light of this, Delelu et al(2025) found that low motivation among geography educators affected the implementation of geography curriculum in secondary schools.

On the other hand, the study found that two factors, teacher qualification and literacy of CGIs, were not significant predictors of teachers' integration of CGIs. Regarding teacher qualification, it was found that it is not a significant predictor of integration performance (r = .167, p > 0.05). The unstandardized coefficient (B = 0.066) also indicates that for each one-unit increase in teacher qualification, the overall integration is predicted to increase by only 0.066, which is a very weak predictor. Furthermore, the standardized coefficient (β= 0.059) indicates that teacher qualification has a minimal effect on teachers' ability to integrate CGIs into their lessons.

This finding is in contrast with other studies. For example, Dalelo (2021) found that teachers' low literacy on the different teaching methods, and their predominant reliance on traditional lecture-based methods rather than student-centred instructional approaches, affected the effective implementation of the curricula. In the global context, Foss and KO (2019) found that there is a positive correlation between the level of teacher qualifications and their effectiveness in incorporating environmental issues into classroom instruction. The study found that teachers who held higher academic qualifications or degrees demonstrated a significantly greater ability to integrate complex environmental issues into their teaching practices. These educators not only possessed a deeper understanding of environmental issues but also employed more diverse and innovative pedagogical strategies used to engage students with real-world environmental challenges.

In relation to teacher literacy, it was found that teacher literacy of CGIs is not considered a significant predictor of teachers' integration performance of CGIs(r = .048, p > 0.05). The unstandardized coefficient (B = 0.023) also indicates that for each one-unit increase in literacy CGIs, teachers' integration performance is increased by 0.023. The standardized coefficient (β = 0.017) also implied that there is a very weak effect of literacy of CGIs on teachers' integration

performance**.** This finding is in contrast with the findings of previous studies. For example, Tang (2025) found that teachers' attitudes, which are one of the components of environmental literacy, significantly influence teachers' willingness to implement climate change education in the classroom. The findings describe that a positive attitude towards climate change emerges as the strongest predictor of willingness to integrate CGIs in the classroom. In this study, it was also found that cognitive factors (knowledge and perceived knowledge) indirectly shape teachers' willingness to integrate climate change and related issues in the classroom.

Hunter and Jordan (2022) found that educators who have good cultural, environmental, and critical literacy have better experiences of integrating environmental issues in the classroom. If they are well environmentally literate, they can provide more complex explanations of issue identification and proposed system-level action more often. On the other hand, Almazroa (2024) assessed climate change literacy among science teachers. The study reveals that science teachers who exhibit a strong understanding of climate change concepts have low levels of integrating climate change concepts both in their curriculum and teaching practices.

CHAPTER SIX: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

In this chapter, the summary of the study and its findings obtained from the analysis of both quantitative and qualitative data are presented. This chapter also includes the conclusions drawn based on the findings, mainly by addressing the intended objectives. Finally, it consists of recommendations forwarded to different responsible bodies.

6.1 Summary of the Study and its Findings

The main purpose of this study was to investigate the integration of CGIs into secondary school geography textbooks and classroom practices, and its effect on students' perceived literacy of CGIs. In addition, it was intended to assess the predictive factors that affect geography teachers' integration of cgis into classroom practices. To accomplish this, objectives and research questions were formulated to address the aim of the study as stated in Chapter One. The study was conducted on grade 9 and 10 geography textbooks, geography teachers, and students. To select teachers and students as samples of the study, secondary schools found in East Gojjam and Awi zones were selected as samples of the study using multi-stage sampling for the questionnaire and purposive sampling technique for in-depth interviews and classroom observations.

To gather the required data for the study, document analysis, questionnaires, in-depth interviews, and classroom observation guidelines were used as data collection methods. While the document analysis was used to examine the extent to which CGIs were integrated both in grade 9 and 10 geography textbooks, the teacher questionnaire and classroom observation guideline were used to examine the extent to which geography teachers integrate CGIs into classroom practices. The in-depth interview was also used to support this larger quantitative data. On the other hand, students' questionnaires were used to investigate the effects of the integration on enhancing students' perceived literacy of CGIS. The in-depth interviews were also used to support this larger quantitative data.

To analyze the data obtained from the above-mentioned methods, various data analysis techniques were employed. While the data obtained from document analysis was analyzed both quantitatively and qualitatively, the data obtained from the teacher and student questionnaires were analyzed quantitatively. Furthermore, the data obtained from the in-depth interview were analyzed qualitatively. In light of the quantitative analysis, frequency, percentage, mean, one-sample t-test, repeated measure of ANOVA, Friedman Rank Order Test, pairwise comparison test, and multiple regression were used. In the case of the qualitative data, thematic analysis was used. Thus, based on the analysis and discussions of the study, the following findings were summarized.

- The data obtained from document analysis indicate that Grade 9 and 10 Geography textbooks integrated contemporary geographic issues that are common at the global and local levels. These CGIs include population growth, environmental degradation, environmental pollution, deforestation, soil erosion, climate change, and unplanned urbanization. Under each contemporary geographic issue, the textbook incorporates various content items such as definitions, causes, consequences, and solutions of the CGIs. However, the ways and the extent to which CGIs are integrated into geography textbooks are not appropriate. Most of the content items are presented in a way that enhances students' knowledge and understanding of CGIs. However, the CGIs are insufficiently integrated to develop students' attitudes, skills, and participation on CGIs, which are essential for cultivating a sense of responsibility, empathy, and commitment to environmental stewardship.

- The integration of learning outcomes of CGIs into Grade 9 and 10 Geography textbooks is inadequate and imbalanced. Most of the objectives in the textbook focus on enhancing students' knowledge and understanding of CGIs. However, there is a limited emphasis on objectives aimed at developing students' attitudes, problem-solving skills and participation in CGIs.

- The findings also revealed that, although Grade 9 and 10 Geography textbooks included a variety of instructional activities that encourage students to engage in different tasks, only a small number of activities were related to CGIs. Even from those activities, most

of them focus on encouraging students to recognize and gain a deeper and more comprehensive understanding of the meanings, causes, consequences, and solutions of CGIs. On the other hand, there were a very limited number of activities aimed at enhancing students' attitudes, problem-solving skills, and participation in CGIs.

- It was found that teachers' levels of integrating issues aimed at enhancing students' literacy of CGIs were low, falling below the average. The one-sample t-test further reveals a significant mean difference between the expected mean and the observed mean of integrating CGIs that enhance students' overall literacy (t = -4.53, df = 71, $p < 0.001$).

- It was also found that when teachers integrate different content items of CGIs, such as the nature/meanings, causes, consequences, and solutions of CGIs in the classroom, they do not integrate the content items in a way to develop students' attitudes, skills, and participation. Rather, teachers placed relatively more emphasis on enhancing students' knowledge of CGIs. In relation to teachers' performance in integrating issues that enhance students' knowledge of CGIs, the mean score (4.06) indicates that teachers' integration is above average. The one-sample t-test also indicates that there was a significant mean difference between the expected mean and the observed mean for integrating CGIs used to enhance students' knowledge (t = 35.2, df = 71, and $p < 0.001$). This implies that teachers mostly integrate different content items of CGIs, such as definitions, causes, impacts, mitigation strategies of CGIs, soil erosion, deforestation, and population growth, in the way they develop students' knowledge of the issues.

- The mean scores (2.99), (2.3), and (2.32), respectively, indicate that teachers' levels of integrating CGIs to develop students' skills, attitude, and participation are below average. The one-sample t-test also indicated that there was a significant mean difference between the expected and the observed mean scores of teachers' levels of integrating CGIs to enhance students' attitude, problem-solving skills, and intention to act.

- The classroom observation and key informant interviews data also indicate that geography teachers did not provide issues or activities used to enhance students' attitude, problem-solving skills, and intention to act on CGIs. The findings imply that teachers' ability

to relate local, regional and global CGI to the classroom lesson, connecting to the impact of each CGI on students' lives by using different techniques such as presenting real-life case studies in the classroom, inviting experts on CGI, and fostering positive attitudes in the classroom, was minimal.

- The findings also indicate that Geography teachers mainly employed conventional instructional strategies such as the lecture method, group discussion, brainstorming, and demonstration when they integrate CGIs into Geography lessons. There was also a statistically significant mean difference in the use of these conventional teaching methods and the recent hands-on, experiential, and inquiry-based teaching methods.
- That is, teachers' use of interactive and inquiry-based methods, which foster students' attitudes, critical thinking, problem-solving abilities, and pro-environmental behaviours in the context of CGIs, was employed at minimal levels. The underutilization of such methods results in missed opportunities for teachers to engage students more effectively through learner-centred and environmentally responsive pedagogy.

- It was also found that Geography teachers' use of the various sources of information widely varies across teachers. While teachers dominantly used the conventional source of learning, such as textbooks, television, environmental organizations, and maps, their use of modern and up-to-date sources of information that provide new information about CGIs, such as radio, newspapers, recently published articles, and GIS, is very low. Most Geography teachers do not use those sources of information that provide opportunities for students to engage in real-life situations, such as real environmental problems found at the local level and field observations. These findings point to a predominant dependence of teachers on traditional instructional materials, with varying degrees of adoption of more dynamic and current sources. The findings also imply that there is a gap between available contemporary resources and their usage in classroom integration. This, in turn, implies that there is a clear need to strengthen the exposure of Geography teachers to these sources of information**.**

- The data obtained from the pre-test, post-test, and follow-up test also indicate that teacher integration of CGIs has shown some effects on the students' literacy of CGIs. Howev-

er, the change in students' literacy of CGIs from the pre-test to post-test was at the lower level, and there is a usual decline in students' literacy level from the post-test to the follow-up test. This implies that the effect of teachers' integration of CGIs on students' literacy of CGIs is not sustained.

- Finally, it was found that there are different predictive factors that affect teachers' integration of CGIs in Geography classrooms. The findings revealed that while material quality, teachers' teaching experience, and professional training programs related to CGIs were considered as significant predictive factors of teachers' levels of integration of CGIs in Geography classrooms, teachers' qualifications and literacy of CGIs were not significant predictors of teachers' integration of CGIs.

- The qualitative data also indicated that teacher-related and institutional-related factors affected the integration of CGIs in Geography classrooms. From the teacher-related factors, the shortage of time and lack of digital literacy affected teachers' integration. In relation to institutional-related factors, less provision of up-to-date teaching resources, limited administrative support and motivation, and lack of provision of professional development opportunities affect teachers' integration of CGIs.

6. 2 Conclusions

Based on the findings of the study, the following conclusions were drawn. The findings of the study indicate that Grade 9 and 10 Geography textbooks integrated the most prevalent contemporary geographic issues, such as population growth, environmental degradation, environmental pollution, deforestation, soil erosion, unplanned urbanization, and climate change. Under each contemporary geographic issue, the textbook incorporates different content items, instructional objectives, and instructional activities of CGIs. However, most of the content items, instructional objectives, and instructional activities are not presented in the textbook in a balanced way. Most of them are presented in the way they enhance students' cognitive knowledge and understanding of contemporary geographic issues. This implies that a cognitively heavy curriculum can lead students to rote memorization and passive learning, rather than developing students' problem-solving skills, sensitivity, and participation in problems related to CGIs. Pedagogically, this calls

for a shift toward holistic integration of CGIs that fosters not only understanding but also empathy, ethical awareness, and action-oriented skills, an approach that is essential to prepare students to become informed, responsible, and engaged global citizens capable of addressing complex environmental and social issues.

From the findings of the study, it was also concluded that geography teachers' overall levels of integration of CGIs were at a lower level. Although teachers' levels of integrating CGIs were at a lower level, teachers demonstrated strong performance in integrating issues that enhance students' knowledge and understanding of CGIs. Teachers present the different CGIs and their nature/definitions, causes, consequences, and mitigation strategies of CGIs through a detailed explanation to enhance students' understanding of CGIs. However, their ability to integrate CGIs to enhance students' attitude, skills, and intention to act on CGIs was relatively low. This implies that geography teachers' integration of CGIs is not able to incorporate the severity of the consequences of CGIs on our environment and human beings, the urgency of solving problems related to each CGI, and the environmental crises caused by CGIs and the ways of solving these problems. This, in turn, implies that teachers focus primarily on the cognitive dimension. Teachers' limited capacity to integrate CGIs in ways that enhance student attitude, problem-solving skills, and participation, on the other hand, causes students lack empathy or a sense of urgency about the local and global challenges of CGIs. This way of presenting CGIs highlights the need for a paradigm shift in Geography education from one that focuses mostly on information delivery to one that prioritizes emotional engagement, skill development, and behavioral change.

Teachers' use of a variety of interactive and problem-based teaching methods, such as experiential learning, reflection, role plays, community engagement, field trips, simulations, and case studies that enhance students' concern, problem-solving skills, and pro-environmental behaviours during the integration of CGIs is at a lower level. Rather, teachers most commonly used the lecture method, with a moderate use of brainstorming, demonstration, group discussion, and concept maps. Pedagogically, this calls for a shift toward an approach of teaching that is essential to prepare students to become informed, responsible, and address complex environmental issues. It was also concluded that teachers' levels of using appropriate and up-to-date sources of information that enhance students' literacy of CGIs are at a lower level. This conclusion has a pedagogical implication in that teachers are expected to use experiential learning and problem-

based instructional approaches, and recent sources of information used to develop students' positive environmental attitudes, practical skills, and real-world problem-solving abilities.

This study also concludes that teachers' integration of CGIs has a low effect on students' literacy of CGIs. Except for enhancing students' knowledge of CGIs, teachers' integration of CGIs in the classroom has a limited impact on developing students' attitudes, problem-solving skills, and active participation in CGIs. As the mean scores of pre-test, post-test, and follow-up test indicated, there was no constant and significant increase in Grade 9 and Grade 10 students' attitude, problem-solving skills, and participation on CGIs across different time points: before the integration, immediately after the integration and at the follow-up stage. That is, although the test scores increased from pre-test to the post-test, there was a decline in test results from the post-test to the follow-up test. This indicates that the effect was not durable or sustained. This limited and unsustained development of students' skills, attitude, and participation in CGIs implies that the current teaching practices are overly focused on cognitive learning. This, in turn, implies that Geography instruction needs to go beyond knowledge transmission and adopt a more transformative, action-oriented pedagogy that empowers students to apply their learning, develop empathy, and engage meaningfully with environmental issues. This conclusion also implies that there is a pressing need to shift pedagogical practices toward a more action-oriented, skills-based, and emotionally engaging approach to teaching CGIs in geography education, for addressing these gaps is essential for equipping students with the competencies needed to understand and respond to complex global challenges.

In relation to the predictive factors that affect teachers' integration of CGIs in Geography classrooms, it was concluded that while material quality, teaching experience, and training were significant predictors of integrating CGIs in the classroom, teachers' qualifications and literacy on CGIs were not significant contributors to teachers' integration. Furthermore, the data obtained from key informant interviews shows that institutional factors such as less provision of up-to-date teaching resources, limited administrative support and motivation, and insufficient opportunities for professional development affect teachers' levels of integrating CGIs in the classroom. Teacher-related factors, such as time constraint, and low digital literacy also major problems that limit their integration of CGIs appropriately in the classroom. These findings imply that effective integration of CGIs in Geography education relies more on material quality, prac-

tical training, teaching experience, internet access, motivation, and continuous professional development. The pedagogical implication of these findings is that educational systems must involve in investing well-qualified resources, design hands-on professional development programs, and foster collaborative teaching culture**s** that empower teachers to bring global issues meaningfully into the classroom.

6.3 Recommendations

Based on the conclusions made, the following recommendations are forwarded.

- Although both Grade 9 and 10 Geography textbooks incorporate key CGIs relevant at both local and global levels, the content items are heavily skewed towards the nature, causes, consequences, and solutions of CGIs, which mainly enhance students' cognitive knowledge of CGIs. However, the textbook gives little focus on students' development of attitudes, problem-solving skills, and reactions to CGIs. Therefore, Textbook writers should present the content items of CGIs in a way to promote students' cognitive understanding, attitudinal change, problem-solving skills, and participation towards CGIs in a balanced way**.**

- Textbook writers need to incorporate the four learning outcomes of integrating CGIs that enhance students' knowledge, skills, attitudes, and participation of CGIs equally and appropriately. This is because integrating the four core learning objectives of CGIs equally plays a crucial role in developing well-rounded, informed, skillful, and responsible learners.

- Moreover, it was found that the learning activities incorporated in Grade 9 and 10 Geography textbooks give little attention to promoting students' skills, attitudes, and participation toward CGIs. Thus, textbook developers need to integrate activities that require more than delivering factual content of CGIs. They should incorporate well-structured, interactive, and reflective learning activities that encourage students to engage emotionally and ethically with global and local challenges related to CGIs.

- As the findings indicate, geography teachers gave more emphasis on enhancing students' conceptual understanding of CGIs, and they most frequently used conventional teaching methods such as the lecture method, group discussion, demonstration, concept mapping,

and brainstorming. However, insufficient attention was given to cultivating students' attitude, skills and practical competencies on environmental problems. Thus, Geography teachers need to use different approaches of teaching to enhance learning objectives of CGIs such as environmental attitudes, problem-solving skills, and participation.

- ✓ To enhance students' environmental attitude, such as their emotional engagement, sensitivity, and concern for the environment, teachers need to create ethically grounded and participatory learning environments. To do this, they should use different types of teaching strategies like storytelling, local connections, ethical questioning, and student-led action activities. Moreover, teachers need to present the students with authentic environmental problems found in their local areas and make them explore the causes, effects, and ethical implications of that particular issue. Teachers should also use field trips or site visits where students directly observe environmental problems to increase their emotional engagement and awareness of CGIs.

- ✓ To enhance students' environmental problem-solving skills and participation, teachers need to use interactive and problem-based instructions such as inquiry-based learning, project-based learning, experiential learning, simulation and role play, debating, case studies, service learning, and technology-assisted learning.

❖ Teachers should use up-to-date sources of information, particularly online sources and platforms that show the different types of CGIs, and how these issues affect human beings and the ecosystem in the global and local contexts.

❖ Students should also engage in a variety of learning activities that enhance their understanding of CGIs, emotional awareness, ethical commitment, problem-solving abilities and participation in CGIs. In addition, students engage in activities like case studies, news reports, and field observations that highlight the human and environmental impacts of geographic problems. They should also engage with communities affected by some of the CGIs that occurred at the local level.

- ❖ Finally, it was found that some factors act as hindrances for teachers to integrate CGIs in the classroom. Thus, it is important for the concerned stakeholders to focus on these factors to improve the integration of CGIs within classroom teaching.

    - ✓ Geography textbook writers should incorporate all the learning objectives of CGIs with a focus on enhancing the knowledge, attitudes, and problem-solving abilities of the students regarding the CGIs.

    - ✓ The Ministry of Education, or the local education bureau need to offer a reliable internet connection to enable Geography teachers and students use the latest information concerning all categories of CGI being used in the curriculum.

    - ✓ The educational bureau or the Ministry of Education should give capacity-building training programs used to teach CGIs in a way to develop students' knowledge, attitude, skills and participation in CGIs equally and in a balanced way.

    - ✓ School directors should alleviate the burden of teachers and inspire them to focus on contemporary global and local issues affecting the environment and life around us.

References

Adamson, G. C., Hannaford, M. J., & Rohland, E. J. (2018). Re-thinking the present: The role of a historical focus in climate change adaptation research. *Global Environmental Change, 48*, 195-205. https://doi.org/10.1016/j.gloenvcha.2017**.**

Adeaga, O. (2008): *Flood hazard mapping and risk management in parts of Lagos*. (MSc Thesis, University of Lagos, Lagos).

Aderogba, A.K. (2020). Climate change and implications for sustainable senior secondary school (SSS) Geography curriculum in Nigeria. *African Journal of Geography and Regional Planning*. *7*(1),1-9.www.internationalscholarsjournals.org.

Adesete, A. A., Olanubi, O. E., & Dauda, R. O. (2023). Climate change and food security in selected Sub-Saharan African Countries. *Environment, Development and Sustainability*, *25*(12), 14623-14641. https://doi.org/10.1007/s10668-022-02681-0

Adessi, A., De Philippis, R., & Rossi, F. (2021). Drought-tolerant cyanobacteria and mosses as biotechnological tools to attain land degradation neutrality. *Web Ecology*, 21(1), 65-78. https://doi.org/10.5194/we-21-65-2021

Africa Center for Strategic Studies. (2024).Record levels of flooding in Africa: Compounds Stress on Fragile Countries.

Agnew, C. T. (2001). Evaluating changes in learning and teaching. *JGHE*, *25*(3), 293-298.

Alberto, Z. N. (2015). Angola's Experiences with Climate Change Education in School Curriculum. In Nhamo, G. &Shava, S. (Eds.). *Climate Change Education In Sadc School Curriculum*(pp. 285-289). Africa Institute of South Africa.

Alemu, K. (2020). The impact of population growth on economic growth: evidence from Ethiopia using the ARDL approach. *Journal of Economics and Sustainable Development, 11*(3), 19-33. https://doi.org/10.7176/JESD/11-3-02

Alemu, T., & Mengistu, A. (2019). Impacts of climate change on food security in Ethiopia: Adaptation and mitigation options: a review. *Climate change-resilient agriculture and agroforestry: Ecosystem Services and Sustainability*, 397-412. https://doi.org/10.1007/978-3-319-75004-0_23

Aliyu A., Liman-Hamza K., Lawal A. (2023). Floods in Sub-Saharan Africa: Causes, determinants, and health consequences. *Niger Med J*ournal, *64*(1), 13-24

Alkaher, I. & Carmi, N. (2019). Risk literacy and environmental education: Does exposure to academic environmental education make a difference in how students perceive ecological risks and evaluate their risk severity?. *Sustainability, 11*(22), 6350. https://doi.org/10.3390/su11226350

Allen-Taylor, K. O. (2022). Assessing the environmental problems of plastic waste in Lagos State, Nigeria. *Open Journal of Environmental Research, 3*(1),11-22. https://doi.org/10.52417/ojer.v3i1.379

Almazroa, H. (2024). Bridging the knowledge–practice gap: assessing climate change literacy among science teachers. *Sustainability*, *16*(20),1-16. https://doi.org/10.3390/su16209088

Andersson, B., & Wallin, A. (2000). Students' understanding of the greenhouse effect, the social consequences of reducing CO2 emissions and the problem of ozone layer depletion. *Journal of Research in Science Teaching*, *37*(10), 1096–1111. https://doi.org/110.1002/1098-2736(200012)37:10<1096

Andersson, E., & Öhman, J. (2017). Young people's conversations about environmental and sustainability issues on social media. *Environmental education research*, *23*(4), 465-485. https://doi.org/10.1080/13504622.2016.1149551

ANRS-BoFED.(2014). Amhara National Regional State Bureau of Finance and Economic Development: 2014 Annual Statistical Bulletin for 2013/14 Budget Year. Bahir Dar (2006).

Antonelli, A., Smith, R. J., Perrigo, A. L., Crottini, A., Hackel, J., Testo, W. & Ralimanana, H.(2022).Madagascar's extraordinary biodiversity: Evolution, distribution & use. *Science, 378*(6623): eabf0869. https://doi.org/10.1126/science.abf0869

Apollo, A., & Mbah, M. F. (2021). Challenges and opportunities for climate change education (CCE) in East Africa: A critical review. *Climate*, *9*(6), 93. 93; https://doi.org/10.3390/cli9060093

Aragaw T. A. (2025). Plastic waste management strategies toward zero waste: Status, perspectives and recommendations for Ethiopia. Cambridge Prisms: Plastics, 3, e1, 1–7 https://doi.org/10.1017/plc.2024.37

Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2025). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, *241*, 108224.

Ardoin, N. M., Bowers, A. W., Roth, N. W., & Holthuis, N. (2018). Environmental education and K-12 student outcomes: A review and analysis of research. *The Journal of EnvironmentalEducation*, *49*(1),1-17. https://doi.org/10.1080/00958964.2017.136615

Ardoin, N. M., Clark, C., & Kelsey, E. (2020). An exploration of future trends in environmental education research. *Environmental Education Research, 26*(5), 735–752. https://doi.org/10.1080/13504622.2012.709823

Arsiso, B. K., Tsidu, G. M., Stoffberg, G. H., & Tadesse, T. (2017). Climate change and population growth impacts on surface water supply and demand of Addis Ababa, Ethiopia. *Climate Risk Management*, *18*, 21-33.

Ashipala, H. T. (2021). *Opportunities for the inclusion of environmental education in the Namibia Senior Secondary Certificate, Geography, Grade 11-12: A case study from Namibia* (PhD Dissertation, Rhodes University, Namibia).

Asnake, B. (2024). Land degradation and possible mitigation measures in Ethiopia: *A review*. *16*(1), 23-29. https://dx.doi.org/ 10.5897/JAERD2019.104

Aubrey G. & Osvaldo A. M. (2013). Are South African Geography education students ready for problem-based learning? *Journal of Geography in Higher Education, 37*(3), 432-455. https://doi.org/ 10.1080/03098265.2013.794332

Australian Geography Teachers' Association (2013).GeogSpace. http:// www.agta.asn.au/Resources/GeogSpace/ index.php

Awoke, A., Beyene, A., Kloos, H., Goethals, P. L., & Triest, L. (2016). River water pollution status and water policy scenario in Ethiopia: raising awareness for better implementation in developing countries. *Environmental management*, *58*(4), 694-706.

Axen, C., Mulugeta, T., & Mulu, W. (1995). *A guiding document on environmental education in Ethiopia*, Addis Ababa.

Ayele, T. (2020). A review of the trends and causes of food insecurity in Ethiopia. *Food Sci Qual Manag*, *99*, 7-12. https://doi.org/10.7176/FSQM/99-02

Bagoly-Simó P. (2013). Half-told stories of climate change: School geography and (un) sustainable development.*Geography*,98(3),123-12.https://doi.org/10.1080/00167487.201

Bagoly-Simó P. (2014). International differences in the presentation of climate (change) in geography textbooks. In Schmeinck D. and Lidstone J.(Eds)., *Standards and research in geography education: Current trends and international issues*, (pp.125-134). Deutsche Nationalbibliothek.

Bajracharya, R., Ale, B. B., Bhusal, C. L., Jnawali, D., Kafle, B. D., & Sapkota, B. (2012). Nepal: Strengthening capacity for managing climate change and the environment-recommendations for academic curricula on climate change and environmental management. https://www.adb.org › 40545-012-nep-tacr-01-1

Balcha, T. A., Worku, K., & Lemma, A. (2025). The status of environmental education in promoting students' sustainable environmental management (capabilities) in Asella secondary schools, Oromia, Ethiopia. *Cogent Education*, *12*(1). https://dx.doi.org/10.1080/2331186X.2025.2576280

Ball, D. B., & Cohen, D. K. (1996). Reform by the book: what is—or what might be—the role of curriculum materials in teacher learning and instructional reform. *Educational Researcher, 25*(9), 6–8, 14. https://espace.library.uq.edu.au › view

Ballantyne, R. (1999). Teaching environmental concepts, attitudes and behaviour through geography education: Findings on an international study. *International Research and Geographical and Environmental Education*, 8(1), 40–58. https://doi.org/10.1080/10382049908667588

Bamberg, S., & Möser, G. (2021). The role of environmental knowledge and problem-solving skills in pro-environmental behavior. *Journal of Environmental Psychology*, 76, 101640.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215. https://doi.org/10.1037/0033-295X.84.2.191

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Worth Publishers.

Bangay, C., & Blum, N. (2010). Education responses to climate change and quality: Two parts of the same agenda?. *International Journal of Educational Development*, *30*(4),359-368. https://doi.org/10.1016/j.ijedudev.2009.11.011.

Baveye *et al*., (2006). Baveye, P., Jacobson, A. R., Allaire, S. E., Tandarich, J. P., & Bryant, R. B. (2006). Whither goes soil science in the United States and Canada?. *Soil Science, 171*(7), 501-518. https://doi.org/10.1097/01.ss.0000228032.26905.a9

Beane, J. A. (1997). *Curriculum integration: Designing the core of democratic education*. Teachers College Press.

Bekabil, U. T. (2020). Industrialization and environmental pollution in Africa: an empirical review. *Journal of Resources Development and Management*, *69*, 18-21. https://dx.doi.org/10.7176/JRDM/69-03

Béneker, T., van der Schee, J., Trimp, H., & Favier, T. (2015). Digital geography education in the twenty-first century: Needs and opportunities. In *Geospatial technologies and geog-*

raphy education in a changing world: Geospatial practices and lessons learned (pp. 11-20). Tokyo: Springer Japan.

Béneker, T., & van der Schee, J. (2015). Future geographies and geography education. *International Research in Geographical and Environmental Education,* 24(4), 287–293. http://dx.doi.org/10.1080/10382046.2015.1086106

Benjamin, D., & Adu, E. O. (2020). Challenges teachers face in the integration of Environmental Education into the South African curriculum. *American Journal of Humanities and Social Sciences Research, 3*(10), 157-166. http://dx.doi.org/10.1080/10382046.2015.1086106

Bentley, K. (2010). *The TKT course CLIL module*. CUP. https://tuaulavirtual.educatic.unam.mx

Bergman, B. G. (2016). Assessing the impacts of locally designed environmental education projects on students' environmental attitudes, awareness, and intention to act. *Environmental Education Research, 22*(4),480-503. http://doi.org/10.1080/13504622.2014.999225

Berkes, F., Colding, J., & Folke, C. (Eds.). (2008). *Navigating social-ecological systems: Building resilience for complexity and change*. CUP. http://doi.org/10.1017/CBO9780511541957.020

Best, J. W., & Kahn, J. V. (2016). *Research in education*. Pearson Education India.

Bhuju, B. D. R., Ranjit, B. K., Adhikari, S., & Pant, T. R. (2017). Climate change education and perception of school children in Nepal. *Status of Child Rights in Nepal, 91*. https://www.researchgate.net › 33316...

Biggs, J. (2003). Aligning teaching for constructing learning. *Higher Education Academy, 1*(4), 1-4. https://www.researchgate.net/publication/255583992

Bizualem, B., Angassa, K., Shibeshi, N. T., & Feyisa, G. L. (2023). Assessing the status of air pollution related to traffic using dispersion modelling: The case of Megenagna, Addis Ababa, Ethiopia. *Bulletin of Atmospheric Science and Technology*, *4*(1), 9.

Black, J.E., Holmes, D.E., Carr, L.M. (2020). A geography of marine plastics. Irish Geogr. 53, 60–92. https://doi.org 10.2014/igj.v53i1.1411 .

Bodzin, A., Klein, B. S., & Weaver, S. (Eds.). (2010). *The inclusion of environmental education in science teacher education*. Springer Science & Business Media. http://doi.org/10.1007/978-90-481-9222-9

Boeve-de Pauw, J., & Van Petegem, P. (2010). A cross-national perspective on youth environmental attitudes. *The Environmentalist*, *30*(2), 133-144. http://doi.org/10.1007/s10669-009-9253-1

Bogner, F. X. (1998). The influence of short-term outdoor ecology education on long-term variables of environmental perspective. *Journal of Environmental Education, 29*(4), 17–29

Boh, B. (1994). *Environmental issues in secondary education*. World Bank.

Bondarenko, O. (2025). *Shockwaves from Ukraine: Trends and gaps in agricultural commodity prices* (No. HEIDWP04-2025). Graduate Institute of International and Development Studies Working Paper. https://hdl.handle.net/10419/312900

Boon, H. J. (2021). Teachers' perceptions of climate change education in the school curriculum. *Australian Journal of Environmental Education, 37*(1), 1–15.

Boykoff, M. T. (2013). Public enemy no. 1? Understanding media representations of outlier views on climate change. *American Behavioral Scientist*, *57*(5), 796–817. http://doi.org/10.1177/0002764213476846

Boykoff, M. T., McNatt, M. B., & Goodman, M. K. (2015). The cultural politics of climate change news coverage around the world. *The Routledge handbook of environment and communication*, 221-231.

Bozdogan, E., Sahinler, S., & Korkmaz, E. (2016). Environmental awareness and attitudes in university students. An example from Hatay (Turkey). *Oxidation Communications*, *39*(1),661-672. https://www.researchgate.net/publication/30119873

Breiting, S., Wickenberg, P., & Scott, W. (2020). Action competence and environmental education. Environmental Education Research, 26(4), 475–489. https://doi.org 10.1080/0305764990290305

Breunig, M., Murtell, J., Russell, C., & Howard, R. (2014). The impact of integrated environmental studies programs: Are students motivated to act pro-environmentally?. *Environmental Education Research*, *20*(3), 372-386. http://doi.org/10.1080/13504622.2013.807326

Bruner, J. (1996). *The culture of education*. Harvard: Harvard University Press.

Bryman, A. (2016). *Social research methods(4th ed.)*. Oxford: Oxford University Press.

Budvytyte, A. (2011). *Environmental education at secondary school system in Lithuania*.(MA thesis, Lund University).

Budzanowska-Drzewiecka, M., & Tutko, M. (2021). The impact of individual motivation on employee voluntary pro-environmental behaviours: The motivation towards the environment of Polish employees. *An International Journal*, *32*(5), 929-948. https://doi.org/10.1108/MEQ-11-2020-0268

Campo-Pais, B., Morales-Hernández, A. J., Morote-Seguido, Á., & Souto-González, X. M. (2021). Environmental problems and Geographic education. A case study: Learning about the climate and landscape in Ontinyent (Spain). *Humanities and Social Sciences Communications*, *8*(1), 1-13. https://doi.org/10.1057/s41599-021-00761-6

CGE, I. (1992). International charter on geographical education. *International geographical union, commission on geographical education*. http://igu-cge.tamu.edu/ charters_1.htm,

Chambers, J., & Rowell, P. (2005). Managing uncertainty in climate change education: From governments to schools. In D. Fisher, D. Zandvliet, I. Gaynor, & R. Koul (Eds.), *Proceedings of the fourth international conference on science, mathematics, and technology education* (pp. 81-89). Perth, Australia

Chang C. H. & Pascua L. (2017). Geographical thinking and its role in climate change education: The case of Singapore. In Brooks C., Butt G. and Fargher M.(eds). *The power of geographical thinking* (pp. 91-102). Springer Cham. https://doi.org/10.1007/978-3-319-49986-4_7

Chang C.-H. & Pascua L. (2016). Singapore students' misconceptions of climate change. *International Research in Geographical and Environmental Education, 25(1), 8*4-96. 6. http://dx.doi.org/10.1080/10382046.2015.1106206

Chang C.-H. (2015). Teaching climate change – a fad or a necessity?, *International Research in Geographical and Environmental Education, 24(3),*181- 183. http://dx.doi.org/10.1080/10382046.2015.1043763

Chang, C. H. (2015). Teaching global issues in geography classrooms: Toward a critical pedagogy. *Journal of Geography, 114(1),* 1–9. https://doi.org/10.1080/00933104.2015.1064842

Cheng, I. N. Y., & So, W. W. M. (2015). Teachers' environmental literacy and teaching–stories of three Hong Kong primary school teachers. *International Research in Geographical and Environmental Education*, 24(1), 58-79. https://doi.org/10.1080/10382046.2014.967111

Chichilnisky, G. (1996). The economic value of the Earth's resources. *Trends in ecology & evolution, 11*(3), 135-140.

Chingos, M. M., & Whitehurst, G. J. (2012). *Choosing blindly: Instructional materials, teacher effectiveness, and the common core*. Brown Center on Education Policy at Brookings.

Chirambo, D. (2018). Leaving no one behind: Improving climate change and entrepreneurship education in Sub-Saharan Africa through e-learning and innovative governance systems. *Distance Learning for Sustainable Development* (pp. 33-47). Cham: Springer International Publishing.

Choi, S., Niyogi, D., Shepardson, D., & Charusombat, U. (2010). Do Earth and environmental science textbooks promote middle and high school students' conceptual development

about climate change? Textbooks' consideration of students' misconceptions. *Bulletin of the American Meteorological Society, 91*(7), 889–898. https://doi.org/10.1175/2009BAMS2625.1

Chowdhury, M. T. (2014). Nature of environmental education in Bangladesh: A school-level assessment with reference to the national curriculum. *International Electronic Journal of Environmental Education, 4*(1), 53-60. https://files.eric.ed.gov › fulltext

Christie, P. (2008). *Opening the doors of learning: Changing schools in South Africa* (p. 18). Johannesburg: Heinemann. https://www.scirp.org › referencespapers

Clement, V., Kumari Rigaud, K., de Sherbinin, A., Jones, B., Adamo, S., Schewe, J., Sadiq, N., & Shabahat, E. (2021). Groundswell Part 2: Acting on Internal Climate Migration. Washington, DC: The World Bank.

Cobbinah, P.B., Addaney, M. (2019). The Geography of Climate Change Adaptation in Urban Africa. Palgrave Macmillan Cham. https://doi.org 10.1007/978-3-030-04873-0 .

Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). Routledge

Corpuz, A. M., San Andres, T. C., & Lagasca, J. M. (2022). Integration of environmental education (EE) in teacher education programs: Toward sustainable curriculum greening. *Problems of Education in the 21st Century, 80*(1), 120-143. https://doi.org/10.33225/pec/22.80.119

Coyle, K. (2005). Environmental literacy in America: What ten years of NEETF/Roper research and related studies say about environmental literacy in the US. *National Environmental Education & Training Foundation*. https://www.academia.edu › Envt.

Creswell, J. W., & Creswell, J. D. (2014). *Research design: qualitative, quantitative, and mixed methods approaches(5th eds.).* SAGE.

Dai**,** A.(2013).Increasing drought under global warming in observations and models. *Journal* of *Nature Climate Change, 3(1),*52-58. https://doi.org/10.1038/nclimate1633

Dalelo, A. (2001). *Natural resource degradation in Ethiopia: Assessment of students` awareness and views*. (PhD Dissertation, University of Flensburg, Germany)

Dalelo, A. (2011). Global climate change in geography curricula for Ethiopian secondary and preparatory schools. *International Research in Geographical & Environmental Education*, *20*(3), 227–246. https://doi.org/10.1080/ 10382046.2011.588505

Dalelo, A. (2012). Loss of biodiversity and climate change as presented in biology curricula for Ethiopian schools: Implications for action-oriented environmental education. International Journal of Environmental & Science. 7(4), 619-638. https://www.eric.ed.gov/?id=EJ997155

Dalelo, A. .(2010). Sustainability issues in the geography curriculum for an undergraduate Programme: The case of Addis Ababa University, Ethiopia. *Southern African Journal of Environmental Education*, *27*. https://www.accord.org.za/ajcr-issues/ajcr-issue-27/

Dalida, C. S., Malto, G. A. O., & Lagunzad, C. G. B. (2018). Enhancing students' environmental knowledge and attitudes through community-based learning. *KnE Social Sciences*, 205-220. https://doi.org/10.18502/kss.v3i6.2381

Drake, S. M., & Burns, R. C. (2004). *Meeting standards through integrated curriculum*. Alex andria, VA: ASCD.

Das, B., & Jan, T. (2025). Bridging generations using climate change education in African early years to tertiary levels. In *practices, perceptions and prospects for climate change Education in Africa* (pp. 41-68). Cham: Springer Nature Switzerland.

Das, K., & Bandyopadhyay, K. R. (2015). Climate change adaptation in the framework of regional cooperation in South Asia. *CCLR, 9*,40-54. https://www.researchgat.

Dawit, D., & Balta, A. (2015). Review of the impact of small-scale irrigations on household food security in Ethiopia. *Journal of Economics and Sustainable Development, 6*(21), 62-70. https://www.researchgate.net/publication/330729542

De Young, R. (2000). Expanding and evaluating motives for environmentally responsible behaviour. *Journal of Social Issues, 56*(3), 509–526. https://www.researchgate.net › 27989...

Delelu, A., Areaya, S & Seyoum. (2025). School administrators' perceptions and challenges in the implementation of the general secondary school geography curriculum

Degirmenci, Y., & Ilter, I. (2017). An Investigation into Geography Teachers' Use of Current Events in Geography Classes. *Universal Journal of Educational Research, 5*(10), 1806-1817. https://doi.org/100.13189/ujer.2017.051019

Dempsey, C., Bodzin, A., Peffer, T., Anastasio, D., Sahagian, D., Cirucci, L., & Bressler, D. (2013). Environmental literacy and inquiry: The climate change curriculum. In the *ASTE International Conference*. https://eli.lehigh.edu › sites › files › naaee2013

Dessalegn, Fufa. (1998). *A study of the extent to which senior secondary school students practice disseminating environmental education to the surrounding community*. (MA thesis, Addis Ababa University)

Dezso, G. (2024). *Climate change education in Afar, Ethiopia–practices, barriers, policy awareness and perceived community support through teachers' experiences* (Master's thesis, Utrecht University).

Dhakal, R., K (2021). Teaching current events in secondary level social studies classroom in Nepal. *Interdisciplinary Research in Education* 6(2), 89-98 https://doi.org/10.3126/ire.v6i2.43541

Dlamini, M.,A. (2016). *Understanding and teaching climate change in the secondary education geography curriculum in Swaziland.* (PhD dissertation, The University of Pretoria).

Dodson, G. Z., Shotorban, A. K., Hatcher, P. G., Waggoner, D. C., Ghosal, S., & Noffke, N. (2020). Microplastic fragment and fibre contamination of beach sediments from selected

sites in Virginia and North Carolina, USA. *Marine Pollution Bulletin, 151*, 110869. https://doi.org/10.1016/j.marpolbul.2019.110869

Dube, C. (2012). *Implementing education for sustainable development: The role of geography in* South Africa. (PhD dissertation, University of Stellenbosch).

EACCCMP. (2011). East African community climate change master plan. East African Community. https://doi.org/10.60682/xj8p-9608

Education Service of Australia. (2013). Australian Education Act 2013: An Act in relation to school education and reforms relating to school education, and for related purposes. https://media.unesco.org › sites › files › webform

EEDR.(2018). Ethiopian Education Development Roadmap (2018-2030), Addis Ababa, Ethiopia.

Ehrlich, P. R., & Ehrlich, A. H. (1990). *The population explosion*. New York, Simon and Schuster.

Ehrlich, P. R., Ehrlich, A. H., & Holdren, J. P. (1997). *Ecoscience: Population, resources, environment*, W.H. Freeman, San Francisco, CA

El Batri, B., Maskour, L., Ksiksou, J., Jeronen, E., Ismaili, J., Alami, A., & Lachkar, M. (2022). Teaching environmental themes within the "Scientific Awakening" course in Moroccan primary school: Approaches, methods and difficulties. *Education Sciences*, *12*(11), 837. https://doi.org/10.3390/educsci12110837

Ellins, K. K., Ledley, T. S., Haddad, N., McNeal, K., Gold, A., Lynds, S., & Libarkin, J. (2014). EarthLabs: Supporting teacher professional development to facilitate effective teaching of climate science. *Journal of Geoscience Education*, *62*(3), 330-342. https://doi.org/10.5408/13-059.1

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, *62*(1), 107-115. https://doi.org/10.1111/j.1365-2648.2007.04569.x.

EM-DAT.(2014). International Disaster Database**:** Environmental problems and Geographic education. A case study: Learning about the climate. https://www.emdat.be

Engelen, E., & Budke, A. (2023). Secondary school students' development of arguments for complex geographical conflicts using the internet. *Education Inquiry*, *14*(1), 85-104. : https://doi.org/10.1080/20004508.2021.1966887

Enke, K. A., & Budke, A. (2023, August). Preparing students for a changing world: How Geography curricula in Europe are tackling climate change. In *Frontiers in Education* (Vol. 8, p. 1216780). Frontiers Media SA.

Environment Forest and Climate Change Commission (EFCCC). (2020). Five-Year (2021–2025) Development Plan of the Environment, Forest and Climate Change Commission of the Federal Democratic Republic of Ethiopia. Addis Ababa: EFCC

Erdogan, M., Kostova, Z., & Marcinkowski, T. (2009). Components of environmental literacy in elementary science education curriculum in Bulgaria and Turkey. *Eurasia Journal of Mathematics, Science and Technology Education, 5*(1), 15–26.

Esteves, M. H., Hortas, M. J., & Mendes, L. (2018). Fieldwork in geography education: An experience in an initial teacher training program. *Didáctica Geográfica*, *19*, 77-101.https://www.researchgate.net › 33020...

European Union Delegation to Ethiopia (EUDE).**(**2016**).** Assessing the root causes of recurring food insecurity in Ethiopia. https://www.scribd.com › document

Eustance, E., Lai, Y. S., Eustance, E., Shesh, T., Frias, Z., & Rittmann, B. E. (2022). Achieving superior carbon transfer efficiency and pH control using membrane carbonation with a wide range of CO2 contents for the coccolithophore Emiliania huxleyi. *Science of the Total Environment*, *822*, 153592. https://doi.org/10.1016/j.scitotenv.2022.153592

Evans, N. & Acton, R. (2021).Narratives of teaching in outdoor and environmental education: What can we learn from a case study of outdoor education pedagogy? *J. Adventure Educ. 22,* 214–227. [**Google Scholar**] [**CrossRef**]

FAO. (2022). The state of food security and nutrition in the world: Repurposing food and agricultural policies to make healthy diets more affordable. https://doi.org/10.4060/cc0639en

Farbotko, C.(2017). Climate change and national security: an agenda for geography. Aust. Geogr. 49, 247–253. https://doi.org 10.1080/00049182.2017.1385119

Fayiga, A. O., Ipinmoroti, M. O., & Chirenje, T. (2018). Environmental pollution in Africa. *Environment, development and sustainability*, *20*(1), 41-73. https://doi.org 10.1007/s10668-016-9894-4

Febriasari, L. K., & Supriatna, N. (2017, September). Enhance environmental literacy through problem-based learning. In *Journal of Physics: Conference Series* (Vol. 895, No. 1, p. 012163). IOP Publishing. https://doi.org/10.1088/1742-6596/895/1/012163

Feldman, L., Maibach, E. W., Roser-Renouf, C., & Leiserowitz, A. (2012). The climate on cable: The nature and impact of global warming coverage on Fox News, CNN, and MSNBC. *The International Journal of Press/Politics*, *17*(1), 3–31.

Fernández-Galeote, D., & Hamari, J. (2021). Game-based climate change engagement: analyzing the potential of entertainment and serious games. *Proceedings of the ACM on Human-Computer Interaction*, *5*(CHI PLAY), 1-21. https://doi.org/10.1145/3474653

Ferreira, J.G, & Bopape, J. (2009). *Professional development of teachers for effective environmental education*. *Southern African Journal of Environmental Education, 26,* 1-11.

Field, C. B., Barros, V. R., Mach, K. J., Mastrandrea, M. D., van Aalst, R. A., Adger, W. N., ... & Yohe, G. W. (2014). Technical summary. https://www.ipcc.ch › site ›

Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behaviour: The reasoned action approach*. Psychology Press

Fisher, W. W., Piazza, C. C., & Roane, H. S. (Eds.). (2021). *Handbook of applied behavior analysis*. Guilford Publications.

Fitzpatrick, R., & Amenya, D. (2023). Climate change and education in Kenya. *Education Development Trust*, 5-9. https://doi.org/10.17158/554

Foss, A. W., & Ko, Y. (2019). Barriers and opportunities for climate change education: The case of Dallas-Fort Worth in Texas. *The Journal of Environmental Education*, *50*(3), 145-159. https://doi.org/10.1080/00958964.2019.1604479

Fraenkel, J.R. Wallen, E, N. & Hyun , H.H.(2019). *How to design and evaluate research in education(*8th eds). The McGraw-Hill Companies, Inc

Gallup. (2017). *Global warming concern at a three-decade high in the US*. https://www.gallup.com/poll/206030/global-warming-concern-three-decade

Gambino, A., Davis, J. & Rowntree, N. (2009). Young children learning for the environment: Researching a forest adventure. *Australian Journal of Environmental Education*, 25, 1-11. http://eprints.qut.edu.au/30140/2/30140.pdf

Garcesa, R. D & R Limjuco, P. R.(2014). Environmental literacy and integration of environmental issues among science teachers in Region XI: basis for training design. *UIC Research Journal .20(1), 187-205*

Gardner, C. C. (2009). Self-efficacy in environmental education: Experiences of elementary education pre-service teachers. (PhD Dissertation, University of South Carolina).

Gebeyehu, D., Dalelo, A., Eshetu, F., Belachew, W., Wodaj, H., Abate, A., & Hagos, M. (2024). Energy, environmental, and climate change literacy among primary and middle school students. *International Journal of Research in Education and Science*, *10*(1), 100-124**.** https://doi.org/10.46328/ijres.3330

Gebrekidan, T. K. (2024). Environmental education in Ethiopia: History, mainstreaming in curriculum, governmental structure, and its effectiveness: *A systematic review*. *Heliyon*, *10*(9).

Gebrekidan, T. K., & Gebremedhin, G. G. (2024). Integration and effectiveness of formal environmental education in Africa and India: Review. *European Journal of Sustainable Development Research*, 8(2). https://doi.org/10.29333/ejosdr/14368

Gebremedhin, E. T., Basco-Carrera, L., Jonoski, A., Iliffe, M., & Winsemius, H. (2020). Crowdsourcing and interactive modelling for urban flood management. *Journal of Flood Risk Management*, *13*(2), 1-15/ https://doi.org/10.1111/jfr3.12602

Gebru, T. D. (2016). Deforestation in Ethiopia: causes, impacts and remedies. *International Journal of Engineering Development and Research, 4*(2), 204-209.

Gerber, R.(ed.) .(2003). *International handbook on geographical education*. Academic Publishers.

Ghulam, M. H. & Libin, C (2025). Challenges and strategies for integrating sustainability and environmental education inhigher education. *Journal of Global Research in Education and Social Science, 19*(3):323-335. https://doi.org/10.56557/jogress/2025

Glenn, J. L. (2001). Using environment-based education to advance learning skills and character development. *Washington, DC: North American Association of Environmental Education*. https://p2infohouse.org › ref

González, A., Norambuena-Contreras, J., Storey, L., & Schlangen, E. (2018). Self-healing properties of recycled asphalt mixtures containing metal waste: An approach through microwave radiation heating. *Journal of Environmental Management*, *214*, 242-251.https://doi.org/10.1016/j.jenvman.2018.03.001 0301-4797/

García-Mira, R., Eulogio Real, J., & Romay, J. (2005). Temporal and spatial dimensions in the perception of environmental problems: An investigation of the concept of environmental hyperopia. *International Journal of Psychology*, *40*(1), 5-10.

Graves, N. (1996). Curriculum development in geography: An ongoing process. In A. Kent, D. Lambert, M. Naish and F. Slater (eds.).*Geography in Education: Viewpoints on teaching and learning*(pp.1–17). Cambridge University Press.

Grzymala-Kazlowska, A., & Phillimore, J. (2018). Introduction: Rethinking Integration. New perspectives on adaptation and settlement in the era of super-diversity. *Journal of Ethnic and Migration Studies*, *44*(2), 179-196. https://doi.org/10.1080/1369183X.2017

Gugssa, M. A. (2023). Characterizing environmental education practices in Ethiopian primary schools. *International Journal of Educational Development*, *102*, 102848..https://doi.org/10.1016/j.ijedudev.2023.102848

Haile, S. (2004). Population, development, and environment in Ethiopia. *Environmental change and security*. Special Report, *10*, 43-51. https://www.wilsoncenter.org › eve

Hameed Sulaiman, Hailu Semegne & P.N.Ananth, P.N (2008). A study on the environmental education in the metropolis schools of Addis Ababa, Ethiopia. *Journal of ~ Environmental Extension*, *7*, 22-30. https://squ.elsevierpure.com › a-study-

Hamilton, L. C. (2011). Education, politics and opinions about climate change evidence for interaction effects. *Climatic Change*, *104*(2), 231–242. https://dx.doi.org/10.1007/s10584-010-9957-8

Hanaysha, J. R., Shriedeh, F. B., & In'airat, M. (2023). Impact of classroom environment, teacher competency, information and communication technology resources, and university facilities on student engagement and academic performance. *International Journal of Information Management Data Insights*, *3*(2), 100188. https://doi.org/10.1016/j.jjimei.2023.100188

Harris, F. (2021). Developing a relationship with nature and place: the potential role of forest school. *Environmental Education Research*, *27*(8), 1214-1228. https://doi.org/10.1080/13504622.2021.1896679

Hartemink, A. E., Veldkamp, T., & Bai, Z. (2008). Land cover change and soil fertility decline in tropical regions. *Turkish Journal of Agriculture and Forestry*, *32*(3), 195-213. https://journals.tubitak.gov.tr/agriculture/vol32/iss3/6

Herman, B. C. (2014). The influence of global warming science views and sociocultural factors on willingness to mitigate global warming. *Science Education*, *99*(1), 1–38. https://doi.org/10.1002/sce.21136

Herman, B. C., Feldman, A., & Vernaza-Hernandez, V. (2017). Florida and Puerto Rico secondary science teachers' knowledge and teaching of climate change sci-

ence. *International Journal of Science and Mathematics Education*, *15*(3), 451-471. https://doi.org/10.1007/s10763-015-9706-6

Hess, L. (2021, November 8). Global Landscapes Forum: LANDSCAPE NEWS. https://news.globallandscapesforum.org/55716/afr100-initiative-getsa-boost-as-usd-2

Ho L.-C. & Seow T. (2015). Teaching controversial issues in geography: Climate change education in Singaporean schools. *Theory & Research in Social Education*, 43(3), 314-344. https://eric.ed.gov › ...

Hoi, P. T. T. (2019, October). Integrating Nature conservation and biodiversity education in teaching in general schools in Vietnam. In *Journal of Physics: Conference Series* (Vol. 1340, No. 1, p. 012052). IOP Publishing. https://doi.org/1010.1088/1742-6596/1340/1/012052

Holloway, S.L., Rice, S.P. & Valentine, G. (Eds) (2003). *Key concepts in geography*. London: Sage Publications

HRD.(2016). Ethiopia: 2016 humanitarian requirements document (HRD) snapshot (as of 5 January 2016). https://www.unocha.org › report › eth...

Hsu, Y. T., & Youle, R. J. (1997). Nonionic detergents induce dimerization among members of the Bcl-2 family. *Journal of Biological Chemistry*, *272*(21), 13829-13834. https://doi.org/10.1074/jbc.272.21.13829

Huang, H., & Cheng, E. W. (2022). Sustainability education in China: Lessons learnt from the teaching of geography. *Sustainability*, *14*(1), 513. https://doi.org/10.3390/ su14010513

Huckle, J., & Sterling, S. R. (Eds.). (1996). *Education for sustainability*. Earthscan.

Hungerford, H. R., & Volk, T. L. (1990). Changing learner behaviour through environmental education. *The Journal of Environmental Education*, *21*(3), 8–21. https://doi.org/10.1080/00958964.1990.10753743

Hunter, R. H., & Jordan, R. C. (2022). The effects of the educator's level of environmental literacy on their issue identification practices. *Environmental Education Research*, *28*(5), 767-785. https://doi.org/10.1080/13504622.2022.2045003

Husen, A. (2018). Integration of environmental education into Ethiopian primary school curricula. (PhD dissertation, Addis Ababa University).

IERE. (2025). Towards Net-Zero: Strategies and innovations towards the power of industry: Impacts and solutions. *International Journal of Big Data Mining for Global Warming* https://doi.org/10.1142/S2630534823300014

IGU. (2007). Lucerne's declaration on geographical education for sustainable development. In S. Reinfried, Y. Schleicher, & A. Rempfler (Eds.), *Geographical views on Education for Sustainable Development*. *Proceedings of the Lucerne Symposium, Switzerland*. https://www.iau-hesd.net › sites › files › media_files

IGU.(2016).2016, August International Charter on Geographical Education. from International Geographic Union - Commission on Geographical Education: http://www.igu-cge.org/Charterspdf/2016/IGU_2016_def.pdf

Ikeh, M. E., Ifeanyieze, F. O., & Ugwuoke, C. U. (2014). Integration of climate change into the senior secondary school Agricultural Science curriculum in Nigeria. *Atmospheric and Climate Sciences*, *4*(4), 614-621. http://dx.doi.org/10.4236/acs.2014.44054

International Organization for Migration. (2022). Assessing the evidence: climate change and migration in the federal democratic republic of Ethiopia

IPCC.(2007): *The physical science basis. Contribution of working group i to the fourth assessment report of the intergovernmental panel on climate change. Cambridge University Press.* https://www.researchgate.net › 22401...

IPCC. (2022). *Climate change: Impacts, adaptation and vulnerability*. Cambridge: Cambridge University Press.

IPCC. (2022). Sixth assessment report: Mitigation of climate change. United Nations Department of Economic and Social Affairs (UN DESA). (2022). World Population Prospects.

IPCC.(20223). Climate change 2023 synthesis report: A report of the Intergovernmental Panel on Climate Change.

Jacobs, H. H. (1989). *Interdisciplinary curriculum: design and implementation*. Alexandria, VA: ASCD.

Jiang, M., Liu, Y., Xia, B., & Yu, S. (2025). The role of environmental knowledge and perceived ecological benefits in shaping farmers' pro-environmental behaviour towards rural solid waste. *Sustainability* 17(12), *2071-1050. https://doi.org/10.3390/su17125258?urlappend*

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research*, *1*(2), 112-133. http://dx.doi.org/0.1177/1558689806298224

Johnson, V. A. (2011). *Disaster preparedness education in schools: Recommendations for New Zealand and the United States*. Wellington: Fulbright New Zealand.

Kanyi, M. G., Vandenbosch, T., Ngesa, F. U., Kibett, J. K., & Muthaa, G. (2011). Integration of natural resource management in the primary education curriculum in Kenya. *International Journal of Agricultural Management and Development (IJAMAD)*, *1*(4), 221-228. https://www.researchgate.net › 26520...

Kariuki, C. N. (2017). *Curriculum and its contribution to awareness of climate change among learners in secondary schools in Githunguri Sub-county, Kiambu County, Kenya.* (MA thesis, *Kenyatta University).*

Kariuki, N., C.(2012). Curriculum and its contribution to awareness of climate change among learners in secondary schools in Githunguri sub-county, Kiambu county, Kenya. (MA thesis, Kenyatta university December, Kenya)

Karthikeyan, O. P., Murugesan, S., Joseph, K., & Nagendran, R. (2008). Leaching of inorganic pollutants from fresh and partially degraded Municipal Solid Waste: a lysimeter study

under tropical conditions. *International Journal of Environment and Waste Management*, *2*(1-2), 49-64. http://dx.doi.org/10.1504/IJEWM.2008.016991

Kasimov, N. S., & Malkhazova, S. M. (2005). Romanova EP. *Environmental Education for Sustainable Development in Russia. Journal of Geography in Higher Education*, *29*, 51-61 https://doi.org/10.1080/03098260500030363

Kemeç, A. B. İ. D. İ. N., & Yalçin, Ö. (2024). Environmental sensitivity of students: the case of USAK University. *Management Research & Practice*, *16*(1). https://ideas.repec.org › rom › mrpase

Kibga, E., Sentongo, J., & Gakuba, E. (2021). Effectiveness of hands-on activities to develop chemistry learners' curiosity in community secondary schools in Tanzania. *Journal of Turkish Science Education*, *18*(4), 605. http://dx.doi.org/10.36681/tused.2021.93

Kibret, E., Amsalu, A., Tadege, A., Teshager, G., Bekalu, M. (2017). The Status and Causes of Secondary School Students' Dropouts: The Case of East Gojjam Administrative Zone, Ethiopia.

Kimori, A.D. (2017). *Integration of environmental issues in a physics course: Physics by inquiry' high school teachers' integration models and challenges.* (PhD dissertation, University of Minnesota)

King, C. H. (2010). An analysis of misconceptions in science textbooks: Earth science in England and Wales. *International Journal of Science Education*, *32*(5), 565–601 http://dx.doi.org/10.1080/09500690902721681f

Kira, E.S. & Komba, S.C. (2015). The Status of geography textbooks for teaching and learning of the concepts of meteorology and environmental education in Tanzanian secondary schools. *International Journal of Education and Research*, *3*(9),127-140. https://ijern.com › 2015 › September-2015

Kligler, S. K., Clark, L., Cayon, C., Prescott, N., Gregory, J. K., & Sheffield, P. E. (2021). Climate change curriculum infusion project: an educational initiative at one US medical school. *The Journal of Climate Change and Health*, *4*, 100065.

Kobe, F. T. (2023). Understanding climate change in Ethiopia: impacts and solutions. *International Journal of Big Data Mining for Global Warming*, *5*(2), 2330001. https://doi.org 10.1142/S2630534823300014

Koç, H. (2018). Teaching Geography in Higher Education: A Case Study of Problem-Based Learning. *Review of International Geographical Education Online (RIGEO)*, *8*(2), 311-337.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge? *CITE*, 9 (1), 60–70.

Kostova, Z. (2007). A system approach to Environmental Education. *Bulgarian Journal of Science and Education Policy (BJSEP)*, *1*(1), 149-171.https://www.scirp.org › referencespapers

Kostova, Z.& Atasoy, E. (2008). Methods of successful learning in environmental education. *Journal of Theory and Practice in Education*, 4 (1):49-78. http://eku.comu.edu.tr/index/4/1/zkostova_eatasoy.pdf

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International Publishers.

Krätzig, S., & Warren-Kretzschmar, B. (2014). Using interactive web tools in environmental planning to improve communication about sustainable development. *Sustainability*, *6*(1), 236-250. http://dx.doi.org/10.3390/su6010236

Krippendorff, K. (2013) *Content analysis. An introduction to its methodology (3rd ed).* California, CA: Sage Publications

Laaloua, H. (2023). The Role of education in addressing environmental challenges: A study of environmental education integration in moroccan geography textbooks. *International Journal of Social Science and Human Research*, *6*(4) 2317-2325. https://doi.org/10.47191/ijsshr/v6-i4-41

Lambert, D., & Morgan, J. (2010). *Teaching geography 11-18: A conceptual approach*. McGraw-Hill Education (UK).

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Lee, J. C. K. (2025). Geographical and environmental education in school curricula. *Oxford Research Encyclopedia of Education*

Lee, K. (2008). Opportunities for green marketing: young consumers. *Marketing intelligence & planning*, *26*(6), 573-586. http://dx.doi.org/10.1108/02634500810902839

Lee, S. J., & Kriewaldt, J. (2025). Where powerful knowledge and pedagogical content knowledge intersect: The case of knowledge and beliefs for teaching school geography through inquiry. *International Research in Geographical and Environmental Education*, *34*(1), 79-94. https://doi.org/10.1108/02634500810902839

Liao, C., & Li, H. (2019). Environmental education, knowledge, and high school students' intention toward the separation of solid waste on campus. *International journal of environmental research and public health*, *16*(9), 1659. https://doi.org/10.3390/ijerph16091659

Liew, M., Xiao, M., Jones, B. M., Farquharson, L. M., & Romanovsky, V. E. (2020). Prevention and control measures for coastal erosion in northern high-latitude communities: A systematic review based on Alaskan case studies. *Environmental Research Letters*, *15*(9). https://doi.org/10.1088/1748-9326/ab9387

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Liobikienė, G., & Poškus, M. S. (2019). The importance of environmental knowledge for private and public sphere pro-environmental behavior: modifying the value-belief-norm theory. *Sustainability*, *11*(12), 3324. https://doi.org/10.3390/su11123324

Liu, J., Dietz, T., Carpenter, S. R., Alberti, M., Folke, C., Moran, E., ... & Taylor, W. W. (2007). Complexity of coupled human and natural systems. *Science*, *317*(5844), 1513-1516. https://doi.org/10.1126/science.1144004

Lombardi, D., & Sinatra, G. (2012). Emotions about teaching about human-induced climate change. *International Journal of Science Education*, *35*(1), 167–191. http://dx.doi.org/10.1080/09500693.2012.738372

Loubser, C., & Simalumba, P. (2016). The implementation of environmental education in geography (Grades 8–10) in the Caprivi Region, Namibia. *Southern African Journal of Environmental Education*, *32*, 51-65. https://scispace.com › pdf › the-implementation-of-

Makokotlela, M. (2016). *Determining the effectiveness of environmental education initiatives of selected government departments in South Africa. (*PhD dissertation, University of South Africa).

Mandal, R., & Mete, D. J. (2023). Teachers' and students' perception towards integration of artificial intelligence in school curriculum: a survey. *International Journal of Multidisciplinary Educational Research*, *12*(7), 5. https://ssrn.com/abstract=4544750

Margenot, A. J., Alldritt, K., Southard, S., & O'Geen, A. (2016). Integrating soil science into primary school curricula: Students promote soil science education with Dig It! The Secrets of Soil. *Soil Science Society of America Journal*, *80*(4), 831-838.

Marquardt, M., & Banks, S. (2010). Theory to practice: Action learning. *Advances in developing human resources*, *12*(2), 159-162. https://doi.org/10.1177/152342231036

Masih, I., Maskey, S., Mussá, F. E. F., & Trambauer, P. (2014). A review of droughts on the African continent: a geospatial and long-term perspective. *Hydrology and Earth System Sciences*, *18*(9), 3635-3649. https://doi.org 10.5194/hess-18-3635-2014

Masoudi S. (2021). Curriculum transformation: Integrating climate change education as a critical imperative. *Med Edu Bull*, 5(1): 937-39.https://doi.org/ 10.22034/MEB.2024.491347.1101

Meadows, D.H., Randers, J. & Meadows, D.L. (2005).*Limits to Growth: The 30-year update*. Earthscan. https://doi.org 10.1108/14636680510611831

Meehan, C. R. & Levy, B. L. M**.,** & Collet-Gildard, L. (2018). Global climate change in U.S. high school curricula: Portrayals of the causes, consequences, and potential responses. *Science Education 102*(3), 1-29. https://doi.org 10.1002/sce.21338

MEFCC. .(2018)., National Forest Sector Development Program, Ethiopia. Volume II: Program Pillars, Action Areas and Targets. Ministry of Environment, Forestry, and Climate Change, Addis Ababa, Ethiopia. https:// www.et.undp.org/.

Megersa, G. & Abdulahi, J. (2015). Irrigation system in Israel: A review. *International Journal of Water Resources and Environmental Engineering,* 7(3), 29-37. https://doi.org 10.5897/IJWREE2014.0556

Meseka T. (2024). The impact of flood disaster response strategies on health outcomes: A study of Western Equatorial. *International journal of dentistry, diabetes, endocrinology and oral hygiene,* 6(1),40-56. https://doi.org/10.37745/ijddeoh.18/vol6n

Mezirow, J. (1991). *Transformative dimensions of adult learning.* Jossey-Bass.

Mhlongo, H. (2017). Addressing global warming issues in schools through curriculum integration. International Journal of Innovative Technology and Interdisciplinary Sciences,7(3), 115-136. https://doi.org/10.15157/ijitis.2024.7.3.115-136

Mhlongo, H. R. (2024). Addressing global warming issues in schools through curriculum integration. *International Journal of Innovative Technology and Interdisciplinary Sciences*, *7*(3), 115-136. https://doi.org/10.15157/IJITIS.2024.7.3.115-136

Miao, S., Meadows, M. E., Duan, Y., & Guo, F. (2022). How does the geography curriculum contribute to education for sustainable development? Lessons from China and the USA. *Sustainability*, *14*(17), 10637. https://doi.org/10.3390/su141710637

Minbashrazgah, M., & Shabani, A. (2019). Eco-capability role in healthcare facility's performance: Natural-resource-based view and dynamic capabilities paradigm. *Management of*

Environmental Quality: An International Journal, *30*(1), 137-156. https://doi.org 10.1108/MEQ-07-2017-0073

MoE, (2010) Education Sector Development Program IV (ESDP IV), (2010/2011-2014/2015). Ministry of Education, Ethiopia

MoE (2010). Curriculum Framework for Ethiopian Education, KG-12 Curriculum Development. Ministry of Education, Ethiopia

MoE (2015) Education Sector Development Program V (ESDP V), (2015-2020) Program. Action. Ministry of Education, Ethiopia

MoE, .(2021). Education Sector Development Program VI (ESDP VI), (2020-2025) Program. Action. Ministry of Education, Ethiopia

MoE. (1994). *Education and training policy*. Addis Ababa: St.George Printing press.

Mokhele, M. L. (2011). Integrated environmental teaching in South Africa: An impossible dream?. *PerspectivesinEducation*, *29*(4),78-86. https://doi.org/10.38140/pie.v29i4.1720

Morales-Aguilar, R., Arenas, A., Cisternas, D., Bascopé, M., Salazar, D., Becerra, R., ... & Merino, C. (2025, May). Transforming education for a sustainable future: an analysis of teacher education in the context of climate change. In *Frontiers in Education* (Vol. 10, p. 1537129). Frontiers Media SA

Morgan, D. L. (2007). Paradigms lost, and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of mixed methods research*, *1*(1), 48-76.:https://doi.org/ 10.1177/2345678906292462

Morrison, M. (2015).*Current events in the classroom: a collection of case studies on the why and how of using the news to teach curriculum. (MA thesis, University of Toronto).*

Muchanga, M. M. &Nakazwe.M.K.(2015).Climate Change Education in the School Curricula of Zambia. InNhamo, G. &Shava, S. (Eds.).*Climate Change Education in SADC School Curriculum(*pp 241-260). Africa Institute of South Africa.

Müller, C., Waha, K., Bondeau, A., & Heinke, J. (2014). Hotspots of climate change impacts in sub-Saharan Africa and implications for adaptation and development. *Global change biology, 20*(8), 2505-2517. https://doi.org/10.1111/gcb.12586

NAAEE. (2001). *Using environment-based education to advance learning skills and character development. The National Environmental Education and Training Policy, Washington, D.C.: USA.*

Nafisah, S. (2022). Urgency of digitizing school libraries in Indonesia's post-truth era: A cross-perspective review. *Jurnal Kajian Informasi & Perpustakaan*, *10*(2), 157-172. https://doi.org/ 10.24198/jkip.v10i2.35702

Namibia Ministry of Education . (2009). *The National Curriculum for Basic Education.* Okahandja: National Institute for Educational Development (NIED). http://www.nied.edu.na › assets › documents › Nat...

Nasution, A., & Syafii, W. (2021). Reforestation service-learning and environmental stewardship. *Journal of Environmental Education, 52*(4), 305–320. https://doi.org/ 10.1108/FER-07-2019-0017

National Center for Educational Statistics. (2014). *Learning contexts: Classroom practices*. https://www. nationsreportcard.gov/hgc_2014/#history/contexts

Naumann, G., Cammalleri, C., Mentaschi, L., & Feyen, L. (2021). Increased economic drought impacts in Europe with anthropogenic warming. *Nature Climate Change, 11*(6), 485-491. https://doi.org/10.31223/osf.io/fg79t

Ndiritu, K.C., Chweya, M.D., Mwangi, K.D. &Glara, J.K. (2016). Infusing Climate Change Content into Kenya's Secondary School Taught Curriculum: Successes and Challenges.*IOSR Journal of Environmental Science, Toxicology and Food Technology 10(9), 23-29.* https://doi.org/ 10.9790/2402-1009012329

Newstadt, M. R. (2015). *The complexities, persistence, and relationships among middle school students' climate change stances and knowledge* (PhD dissertation, University of Michigan).

Ngobo, P. V. (2011). What drives household choice of organic products in grocery stores?. *Journalof retailing*, *87*(1), 90-100. https://doi.org/10.1016/j.jretai.2010.08.001

Niang I, et al. (2014). Africa. In Barros VR, Field CB, Dokken DJ, et al. (eds). *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge(1199–1265). Cambridge University Press.

Nicolescu, B. (2002). *Manifesto of Transdisciplinarity*. Albany, NY: State University of New York Press.

Nnopuechi, E.(2021). The history of recent droughts in Africa (1980-2020): Consequences, responses and lessons learned

Nussbaum, E., Owens, M. C., Sinatra, G., Rehmat, A., Cordova, J., Ahmad, S., ... Dascalu, S. (2015). Losing the lake: Simulations to promote gains in student knowledge and interest about climate change. *International Journal of Environmental & Science Education*, *10*(6), 789–811. https://doi.org/10.12973/ijese.2015.277a

Nzobonimpa, C., & Zamroni, Z. (2017). *The implementation of population education in senior high school. Research and Evaluation in Education, 3(2), 124-132*. Nzobonimpa, C., & Zamroni, Z. (2017). *The implementation of population education in senior high school. Research and Evaluation in Education, 3 (2), 124-132*. https://doi.org/10.12973/ijese.2015.277a

O'Connor, K., Greene, M., & Bloom, D. (2020). Service-learning for waste management education. *International Journal of Sustainability in Higher Education*, 21(6), 1234–1249.

OCHA. (2017). United Nations Office for the Coordination of Humanitarian Affairs (OCHA) annual report. https://www.unocha.org › world › oc..

Ochieng, M. (2014). *Climate Change Awareness and Policy Implications among Primary School Teachers in Kisumu City, Kenya*. (MA thesis, Kenyatta University).

OECD .(2021a). *OECD skills outlook: Learning for life*. OECD Publishing, Paris, https://doi.org/10.1787/0ae365b4-en.

Ofoezie, E. I., Eludoyin, A. O., Udeh, E. B., Onanuga, M. Y., Salami, O. O., & Adebayo, A. (2022). Climate, urbanization and environmental pollution in West Africa. . *Sustainability*, *14*(23), 15602. https://doi.org/:0.3390/su142315602

Ogunseitan, O. A. (2022). Broad-spectrum integration of climate change in health sciences curricula. *Frontiers in Public Health*, *10*,# 954025. https://doi.org/10.3389/fpubh.2022.954025

Ojala, M. (2015). Hope in the face of climate change: Associations with environmental engagement and student perceptions of teachers' emotion communication style and future orientation. *The Journal of Environmental Education*, *46*(3), 133-148. https://doi.org/10.1080/00958964.2015.1021662

Oldakowski, R. & Johnson, A. (2018). Combining Geography, Math, and Science to Teach Climate Change and Sea Level Rise, *Journal of Geography*, *117*(1), 17-28, https://doi.org/10.1080/00221341.2017.1336249

Oljirra, A. (2019). The causes, consequences and remedies of deforestation in Ethiopia. *Journal of degraded and mining lands management*, *6*(3), 1747. https://doi.org/10.15243/jdmlm.2019.063.1747

Oluwatobi1, O.O., Adesina, F. & Jammeh B.L.J.. .(2019). Integrating climate change issues in the upper basic schools of the Gambia: A test case of the upper basic school Curriculum. *Journal of Environment and Earth Science*, 9(4). https://doi.org/10.7176/JEES/9-4-05

Onkargouda, K, Hiremath, S., & Raut, N. (2013). Role of media in creating awareness about climate change: a case study of Bijapur city. *IOSR Journal of Humanities and Social Science*, *10*(1), 37-43. https://doi.org/10.9790/0837-01013743

Özalemdar, L. (2021). The effect on environmental attitude of the active learning method applied in teaching the biology topic" current environmental issues and human" for 10th-grade students. *Journal of Turkish Science Education*, *18*(2), 276-289. https://doi.org/I:10.36681/tused.2021.65

Ozsoy, S., Ertepinar, H., & Saglam, N. (2012,). Can eco-schools improve elementary school students' environmental literacy levels? *Asia-Pacific Forum on Science Learning and Teaching*, 13(2), 1-25. https://www.researchgate.net › 28592.·

Palmer, A.J. (1998). *Environmental education in the 21st century: Theory, practice, progress and promise*. Routledge

Parnes, M. F., Turner, J., Wang, M., Bae, J., Dorritie, B., Subramanian, M., & Schwartz, S. E. (2025). Teaching about climate change in US classrooms. *Theory into Practice*, *64*(2), 235-248. https://doi.org/ 10.1080/00405841.2025.2453372

Patton, M. Q. (2002). *Qualitative research and evaluation methods (3rd ed.).* Sage.

Pease et al., 2019. Pease, M., Chaney, P.L., Hoover, J., 2019. A review of water resources education in geography departments in the United States. *J. Contemp. Wat. Res. Educ.* 168, 93–105: https://doi.org/10.1111/j.1936-704X.2019.03323.x .

Pennock, M. T., & Bardwell, L. V. (1994). *Approaching Environmental Issues in the Classroom. Workshop Resource Manual*. National Consortium for Environmental Education and Training, Dana Building, 430 E. University Ave., Ann Arbour, MI 48109-1115.

Pereiraa, P.& Zhao b, W. (2025). Geography and geographical knowledge contribute decisively to all sustainable development goals and targets. *Geography and Sustainability*, 6(2025). https://doi.org/10.1016/j.geosus.2025.100267

Petkou, D., Andrea, V., & Anthrakopoulou, K. (2021). The impact of training environmental educators: environmental perceptions and attitudes of pre-primary and primary school teachers in Greece. *Education Sciences, 11*(6), 274. 4; https://doi.org/10.3390/educsci11060274

Piaget, J. (1972). *Psychology and Epistemology: Towards a Theory of Knowledge. New York*: Viking Press.

Pihkala, P. (2017). Environmental education after sustainability: Hope in the midst of tragedy. *GlobalDiscourse, 7*(1),109127.https://doi.org/10.1080/23269995.2017.13004

Pingel, F. (2010). *UNESCO guidebook on textbook research and textbook revision*. UNESCO.

Ploughe, L. W., Jacobs, E. M., Frank, G. S., Greenler, S. M., Smith, M. D., & Dukes, J. S. (2019). Community Response to Extreme Drought (CRED): a framework for drought-induced shifts in plant–plant interactions. *New Phytologist*, *222*(1), 52-69. https://doi.org//10.1111/nph.15595

Porter, D., Weaver, A. J., & Raptis, H. (2012). Assessing students' learning about fundamental concepts of climate change under two different conditions. *Environmental Education Research*, *18*(5), 665–686. https://doi.org/10.1080/13504622.2011.640750

Potter, R., & Unwin, T. (Eds.) (2017). The geography of urban-rural interaction in developing countries: Essays for Alan B. Mountjoy. London: Routledge. https://doi.org/10.4324/9781351215381

Pritchard, A., & Woollard, J. (2010). *Psychology for the classroom: Constructivism and social learning*. London: Routledge

Putri, Y. D. S., Khaerunisah, A., Astuti, D., Septiana, S., Alfiani, T., Fakhiroh, Z., & Febrianti, A. A. (2023). Implementation of the Pancasila student profile strengthening project in elementary school. *Journal of Education and Teacher Training Innovation*, *1*(1), 11-23. https://doi.org/110.54371/jiip.v7i11.6278

Rampedi, M. P. (2001). *Criteria for a model for the integration of environmental education into the school curriculum of the northern province*. (PhD thesis, University of South Africa).

Raselimo, M. (2014).Integration of environmental education into geography lessons: Is there a change in school geography following the LEESP intervention? *South African Geographical Journal*, 96(2), 119-133. https://doi.org/10.1080/03736245.2013.847800

Razali N. E. M, Ramli R., Z, Mohamed H., Zin N. A. M, Rosdi F., & Diah N. M. (2022). Identifying and validating game design elements in the serious game guidelines for climate change. *Heliyon*, 8, e08773

Reid, A., & Scott, W. (2006). Researching education and the environment: an introduction. *Environmental Education Research*, 12, 571-588.

Rimba, F., & Rastati, R. (2023). Analysis of Environmental Problem-Solving Ability of Students in Class XI Social Science at State Senior High School 17 West Jakarta, *Jurnal Tunas Geografi*, 12(1), 9-17. https://doi.org/10.24114/tgeo.v12i1.42473

Roczen, N., Kaiser, F. G., Bogner, F. X., & Wilson, M. (2014). A competence model for environmental education. *Environment and Behaviour*, *46*(8), 972-992. https://doi.org/10.1177/0013916513492416

Román, D., & Busch, K. C. (2016). Textbooks of doubt: Using systemic functional analysis to explore the framing of climate change in middle-school science textbooks. *Environmental Education Research*, *22*(8), 1158–1180. *http://www.tandf.co.uk/journals*

Ronald,A.M.&, Merab,A.K.(2017). Impact of secondary school geography content in mitigating climate change in Uganda**.** *IOSR-JESTFT, 11*(7), 35-43. https://doi.org/10.9790/2402-1107013543

Roth, C. E. (1992). *Environmental Literacy: Its Roots, Evolution and Directions in the 1990s*. Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education

Ruiz-Garzón, F., Olmos-Gómez, M.d.C.; Estrada-Vidal, L.I. (2021). Perceptions of Teachers in Training on Water Issues and Their Relationship to the SDGs. *Sustainability*, 13(9), 5043. https:// doi.org/10.3390/su13095043

Rusinko, C. A. (2010). Integrating sustainability in higher education: a generic matrix. *International Journal of sustainability in higher education*, *11*(3), 250-259. https:// doi.org/10.1108/14676371011058541

Rwobusiisi, S. T., Dhliwayo, A., Kiwonde, F., Makewa, L. N., & Ronald, K. (2021). An assessment of the extent of inclusion of climate change in secondary schools curricular in Africa: A content analysis. *Journal of Research Innovation and ~ Implication in Education*, *5*(3), 71-83. https://www.researchgate.net › 37951...

Sahara and Sahel Observatory [OSS].(2025).African land: the degradation and the absolute requirement of sustainable management. https://www.oss-online.org › ld_terres-...

Sarkar, M. (2011). Secondary students' environmental attitudes: The case of environmental education in bangladesh. *International Journal of Academic Research in Business and Social Sciences, 1*, 106-116. https://www.researchgate.net › 32402...

Schmidt, W., Houang, R., & Cogan, L. (2002). *A coherent curriculum: The case of mathematics*. American Educator.

Schultz, P., Estrada, M., & Schmitt, D. (2021). Communication and community engagement in environmental learning. *Environmental Education Research,* 27(1), 13–28.

Seidman, I. (2013). *Interviewing as qualitative research: A guide for researchers in education and the social sciences* (4th ed.). Teachers College Press.

Selby, D. (1995). *EarthKind: A teacher's handbook on humane education*. Stoke-on-Trent

Selwyn, N. (2012). *Education in a digital world: Global perspectives on technology and education*. Routledge

Sendawula, K., Turyakira, P., Akileng, G., & Vincent, B. (2024). Environmental knowledge, regulatory compliance mechanisms, and environmental sustainability practices of manufacturing small and medium enterprises (SMEs) in Uganda. *Journal of Innovation and Entrepreneurship, 13*(1), 75. https://doi.org/10.1186/s13731-024-00426-z

Senthamarai, S. (2018). Interactive teaching strategies. *Journal of Applied and Advanced Research, 3*(1), S36-S38. https://dx.doi.org/10.21839/jaar.2018.v3S1.166

Serdeczny, O., Adams, S., Baarsch, F., Coumou, D., Robinson, A., Hare, W., ... & Reinhardt, J. (2017). Climate change impacts in Sub-Saharan Africa: from physical changes to their social repercussions. *Regional Environmental Change*, *17*(6), 1585-1600.

Setten, G., Lujala, P.(2020). Climate change and natural hazards – the geography of community resilience. *Nor. J. Geogr*. 74, 133–134. https://doi.org 10.1080/00291951.2020.1778782

Shabalala, M. P. and Msezane,S, B.(2020). Perceptions of environmental education integration in South African Schools. *Eco. Env. & Cons. 26* (4), 1629-1635. https://www.researchgate.net › 36278...

Shanmugavelu, G., Parasuraman, B., Ariffin, K., Kannan, B., & Vadivelu, M. (2020). Inquiry Method in the Teaching and Learning Process. *Shanlax International Journal of Education*, *8*(3), 6-9. https://doi.org/10.34293/ education.v8i3.2396

Sheffield, P.E. & Landrigan, P.J.(2010). Global climate change and children's health: threats and strategies for prevention. *Environmental health perspectives*, 1*19*(3), 291-298. https://doi.org/10.1289/ehp.1002233. Epub 2010 Oct 14.

Shulman, L. (1986). Those who understand: Knowledge growth in teaching. Educational Researcher, *15*(2), 4–14. http://www.jstor.org/stable/1175860

Shulman, L. S. (1987), Knowledge & teaching: Foundations of the new reform. *Harvard Educational Review* 57(1),1-21. http://dx.doi.org/10.17763/haer.57.1.j463w79r564554

Shutaleva, A. (2023). Experiential learning as a principle of environmental education. In *2023 International Scientific Conference Ecological and Biological Well-Being of Flora and Fauna, EBWFF 2023* (Vol. 420). EDP Sciences. https://doi.org/10.1051/e3sconf/202342010010

Sikhosana, L., Mudau, A. V., & Msezane, S. B. (2020). Insights into the integration of environmental education in the senior phase. *Journal for the Education of Gifted Young Scientists*, *8*(4), 1411-1425. https://doi.org/10.17478/jegys.750519

Silva Junior, C. H., Pessôa, A. C., Carvalho, N. S., Reis, J. B., Anderson, L. O., and Aragão, L. E. (2021). The Brazilian Amazon deforestation rate in 2020 is the greatest of the decade. *Nat. Ecol. Evol.* 5, 144–145. doi: 10.1038/s41559-020-01368-x

Simane, B., Beyene, H., Deressa, W., Kumie, A., Berhane, K., & Samet, J. (2016). Review of climate change and health in Ethiopia: status and gap analysis. *Ethiopian Journal of Health Development*, *30*(1), 28-41.

Sims, L., Asselin, M., & Falkenberg, T. (2020). Environmental and Sustainability Education Pedagogical Approaches in Pre-Service Teacher Education. *Canadian Journal of Environmental Education, 23*(1), 14-32. https://doi.org/10.17478/jegys.750519

Sjöström, J., Frerichs, N., Zuin, V. G., & Eilks, I. (2020). Sample review article: Use of the concept of Bildung in the international science education literature, its potential, and implications for teaching and learning. *International Handbook of Physics Education Research, 1*(1), 63-90.

Skalík, J. (2015). Climate change awareness and attitudes among adolescents in the Czech Republic *Envigogika 10 (4),1–19.* https://doi.org/10.14712/18023061.472

Sofiyan, S., Aksa, F.I. & Saiman, S.(2019).An analysis of climate change in the curriculum in Indonesia. *Journal of Physics:* Conference Series 1321(2), 022121. https://doi.org/10.1088/1742-6596/1321/2/022121.

Solomon, N., Birhane, E., Tilahun, M., Schauer, M., Gebremedhin, M. A., Gebremariam, F. T., ... & Newete, S. W. (2024). Revitalizing Ethiopia's highland soil degradation: a comprehensive review on land degradation and effective management interventions. *Discover Sustainability*, *5*(1), 106.

Spiro, R. J., Feltovich, P. J., Jacobson, M. J., & Coulson, R. L. (2013). Knowledge representation, content specification, and the development of skill in situation-specific knowledge assembly: Some constructivist issues as they relate to cognitive flexibility theory and hypertext. In *Constructivism and the technology of instruction* (pp. 121-128). https://doi.org/10.1007/s43621-025-01334-2Routledge. https://cjee.lakeheadu.ca › article › view

Stanišić, J.; Maksić, S. (2014).Environmental Education in Serbian Primary Schools: Challenges and Changes in Curriculum, Pedagogy, and Teacher Training. *J. Environ. Educ. 45*, 118–131. [**Google Scholar**] [**CrossRef**

Sterling, S. (2021). *Ethics, values, and sustainability education*. Routledge.

Sterman, J., Rooney-Varga, J., & Fracassi, E. (2015). *World Climate Simulation: A role-play exercise for climate change communication*. Simulation & Gaming, 46(3–4), 1–27. https://doi.org/10.1177/1046878113514935

Sukarjita, I. W., Ardi, M., Rachman, A., Supu, A., & Dirawan, G. D. (2015). The integration of environmental education in science materials by using the MOTORIC learning model. *International Education Studies*, *8*(1), 152-159. https://doi.org/10.5539/ies.v8n1p152

Sunassee, S., Young, R., Sewry, J., Harrison, T., & Shallcross, D. (2012). Creating climate change awareness in South African schools through practical chemistry demonstrations. *Acta Didactica Napocensia*, *5*(4), 31-48. http://adn.teaching.ro/ https://eric.ed.gov › ...

Taba, H. (1962). *Curriculum development: Theory and practice*. Harcourt, Brace & World.

Tadesse, A. & Hailu, W.(2024). Causes and consequences of land degradation in Ethiopia: A review**.** *International Journal of Science and Qualitative Analysis*, *10*(1), 10-21 https://doi.org/10.11648/j.ijsqa.20241001.12

Tamene, L., Abera, W., Demissie, B., Desta, G., Woldearegay, K., & Mekonnen, K. (2022). Soil erosion assessment in Ethiopia: A review. *Journal of Soil and Water Conservation*, *77*(2), 144-157. https://doi.org/10.2489/jswc.2022.00002

Tang, K. (2025). Teacher conceptions of climate change and their role in climate change education: Insights from Indonesian upper-secondary teachers. *Discover Sustainability*, *6*(1), 486.

Tani, S. (2022). Climate change and geography education: Could young people's geographies and powerful disciplinary knowledge make a change?. In *Il Cammino Di Un Geografo, Un Geografo in Cammino: Scritti in Onore Di Gino De Vecchis* (pp. 160-172). Franco Angeli.

Tashakkori, A., & Teddlie, C. (2010). Putting the human back in ‘‘human research methodology’’: The researcher in mixed methods research. *Journal of mixed methods research, 4*(4), 271-277. https://doi.org/10.1177/1558689810382532

Tefera, M., L, Carletti. A., Altea. L., Rizzu, R., Migheli, Q., Seddaiu, G.(2024). Land degradation and the upper hand of sustainable agricultural intensification in sub-Saharan Africa: A systematic review. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, 125(1), 63–83 https://doi.org/10.17170/kobra-202403129757

Tiago, E., Rodrigues, R.& Ramos, R.(2021). Challenges and importance of environmental education in the education system in Portugal. Revbea, *São Paulo*, 16(4), 49-59. https://doi.org/10.34024/revbea.2021.v16.11587

Tilbury, D. (1995). Environmental education for sustainability: Defining the new focus. *Environmental Education Research, 1*(2), 195–212. http://doi.org/10.1080/1350462950010206

Tilbury, D. (1997). Environmental education and development education: *Teaching geography for a sustainable world*. In D. Tilbury & M. Williams (Eds.), Teaching and learning geography (pp. 105–116). Routledge.

Torroba Diaz, M., Bajo-Sanjuan, A., Callejo n Gil, A . M., Rosales-Pe rez, A., & Lo pez Marfil, L. (2023). Environmental behavior of university students. *International Journal of Sustainability in Higher Education*, *24*(7), 1489–1506. https://doi.org/10.1108/IJSHE-07-2022-0226

Tracana, R. B., Carvalho, G. S., Ferreira, C., & Ferreira, M. E. (2008). Analyzing the theme of pollution in Portuguese geography and biology textbooks. *International Research in Geographical and Environmental Education, 17*(3), 199-211. http://dx.doi.org/10.1080/10382040802168289

Tsegaye, B. (2019). Effect of land use and land cover changes on soil erosion in Ethiopia. *International Journal of Agricultural Science and Food Technology, 5*(1), 026-034.

Tuncer, G., Tekkaya, C., Sungur, S., Cakiroglu, J., Ertepinar, H., & Kaplowitz, M. (2009). Assessing pre-service teachers' environmental literacy in Turkey as a means to develop teacher education programs. *International Journal of Educational Development*, *29*(4), 426-436. https://doi.org/10.1016/j.ijedudev.2008.10.003

Turner, B. L. (2002). Contested identities: human-environment geography and disciplinary implications in a restructuring academy. *Annals of the AAG*, 92(1), 52–74. https://doi.org/10.1111/1467-8306.00279

Turner, T. N. (1995). Riding the rapids of current events. *Social Studies, 86*(3), 117-21.

UN. (1972). *Report of the United Nations Conference on the Human Environment, Stockholm,5–16 June 1972*. United Nations. https://digitallibrary.un.org/record/523249

UNCCD.(2019). United Nations Convention to Combat Desertification. https://data.unccd.int/countryoverview?

UNDRR. (2021). *United Nations Office for Disaster Risk Reduction: 2021 annual report.* UNDRR. https://www.undrr.org/publication/undrr-annual-report-2021

UNEP. (2013). *Adaptation to climate change–induced water stress in the Nile Basin: A vulnerability assessment report.* Division of Early Warning and Assessment (DEWA), UNEP.https://www.unep.org/resources/report/adaptation-climate-change-induced-water-stress-nile-basin

UNEP.(2022). Environmental education for sustainable development report. https://www.unep.org › resources › su...

UNESCO. (1978). *Intergovernmental Conference on Environmental Education: Tbilisi Declaration*. Paris: UNESCO.

UNESCO. (1997). *International Conference on Environment and Society: Education and public awareness for sustainability — Final report, Thessaloniki, Greece, 8–12 December 1997*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000110753

UNESCO. (2005). *United Nations Decade of Education for Sustainable Development: International implementation scheme and UNESCO's contribution to the implementation of the Decade (Report No. UNGA 59/237).* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000141629

UNESCO. (2016). *Global education monitoring report 2016: Education for people and planet—Creating sustainable futures for all.* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000245752

UNESCO**. (2017).** *Education for Sustainable Development Goals: Learning objectives.* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000247444

UNESCO (2020). Education for Sustainable Development: A Roadmap. Paris: UNESCO

UNESCO**. (2020).** *Global education monitoring report 2020: Inclusion and education—All means all.* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000373718

UNESCO. (2021). Reimagining our futures together: A new social contract for education. UNESCO Publishing.

UNESCO. (2024). Education and climate change: Learning to act for people and planet.

UNESCO. (2024). Green school quality standard: Greening every learning environment.

UNESCO. (2024). Greening the curriculum to get all learners climate-ready.France: UNESCO

UNESCO. (2025). Greening communities guidance: Lifelong learning for climate and sustainability action: UNESCO Institute for Lifelong Learning World Organization of the Scout Movement.

UNICEF (2011) African adaptation program (aap) supporting climate resilient, sustainable development in Ethiopia. 3rd Quarter Narrative Report. Pp 6

UNICEF. (2019). *It's getting hot: Call for education systems to respond to the climate crisis—Perspectives from East Asia and the Pacific.* UNICEF. https://www.unicef.org/eap/reports/its-getting-hot

Urbańska, M., Charzyński, P., Gadsby, H., Novák, T. J., Şahin, S., & Yilmaz, M. D. (2021). Environmental threats and geographical education: Students' sustainability awareness—Evaluation. *Education Sciences, 12*(1),1. .https://doi.org/ 10.3390/educsci12010001

Velempini, K. (2017). Infusion or confusion: A meta–analysis of Environmental Education in the 21st century curriculum of Botswana. *Africa Education Review*, *14*(1), 42-57. https://doi.org/10.1080/18146627.2016.1224560

Verlie, B., Clark, E., Jarrett, T., & Supriyono, E. (2021). Educators' experiences and strategies for responding to ecological distress. *Australian Journal of Environmental Education*, *37*(2), 132-146. https://doi.org/10.1017/aee.2020.34

Vicente-Serrano, S. M., Lopez-Moreno, J. I., Beguería, S., Lorenzo-Lacruz, J., Sanchez-Lorenzo, A., García-Ruiz, J. M., .& Espejo, F. (2014). Evidence of increasing drought severity caused by temperature rise in southern Europe. *Environmental Research Letters*, *9*(4), 044001. https://doi.org/10.1088/1748-9326/9/4/044001

Viljoen, W. (2013). Addressing climate change issues in eastern and southern Africa: the EAC, COMESA, SADC and the TFTA. *Cape to Cairo*, *130*.

Volk, H. E., Lurmann, F., Penfold, B., Hertz-Picciotto, I., & McConnell, R. (2013). Traffic-related air pollution, particulate matter, and autism. *JAMA psychiatry*, *70*(1), 71-77. https://doi.org/10.1001/jamapsychiatry.2013.266

Vygotsky, S. (1978).*Mind in society: The development of higher psychological processes*

Waliczek, T. and M. Zajicek, J. (1999). School Gardening: Improving Environmental Attitudes of Children Through Hands-On Learning. *Journal of Environmental Horticulture*, *77(*43),180-184. https://doi.org/10.24266/0738-2898-17.4.180

Wang, T.Y., Tan L.X. Xie S.Y.& Ma, B. (2017). Development and applications of common utility tunnels in China Tunn.Undergr. *Space Technol*., 76 (2018), 92-106. https://doi.org/10.1016/j.tust.2018.03.006

Wang, Y., Hao, F., & Liu, Y. (2021). Pro-environmental behavior in an aging world: Evidence from 31 countries. *International Journal of Environmental Research and Public Health,* 18(4), 1–13. https://doi.org/10.3390/ijerph18041748

Wassie, S. B. (2020). Natural resource degradation tendencies in Ethiopia: a review. *Environmental systems research*, *9*(1), 1-29. 10.1186/s40068-020-00194-1

Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity.* Cambridge University Press.

Yani, I., Budiana, S., Rostikawati, T., Sundari, F. S., & Umam, M. A. K. (2025). Enhancing students' pollution problem-solving skills through problem-based learning: The moderating role of mathematical literacy. *journal of mathematics instruction, Social Research and Opinion*, *4*(2), 347-356. https://doi.org/10.58421/misro.v4i2.431

Yaşar, O., & Şeremet, M. (2010). An evaluation of teaching methods and materials used in geography teaching in Turkish higher education regarding several variables. *International Journal of Human Sciences*, *7*(1), 675-702. https://www.researchgate.net/publication/41908370

Yavetz, B., Goldman, D., & Pe'er, S. (2014). How do pre-service teachers perceive the environment and its relevance to their area of teaching?. *Environmental Education Research, 20*(3), 354-371. https://doi.org/ 10.1080/13504622.2013.803038

Zaini, M & Ita. (2020). Students' attitudes toward preservation of the school environment through inquiry-based learning. *Eco. Env. & Cons*. *26*(1), 61-68. https://www.envirobiotechjournals.com

Zegeye, H. (2018). Climate change in Ethiopia: impacts, mitigation and adaptation. *International Journal of Research in Environmental Studies, 5*(1), 18-35.

Zeng, Z., Zhong, W., & Naz, S. (2023). Can Environmental knowledge and risk perception make a difference? The role of environmental concern and pro-environmental behaviour in fostering sustainable consumption behavior. *Sustainability,*15, 4791. https://doi.org/10.3390/su15064791

APPENDICES

Appendix A: Teachers' Questionnaire

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

A survey questionnaire for geography teachers

The purpose of this questionnaire is to assess the extent to which contemporary geographic issues (CGIs) are integrated into geography classroom instruction. The first section gathers teachers' demographic information, including their level of education, years of teaching experience, and participation in training programs related to CGIs or environmental issues. The second section focuses on the level of integration of CGIs in geography instruction, particularly in relation to the four components of CGI literacy: students' knowledge, skills, attitudes, and participation.

The third and fourth sections examine, respectively, teachers' use of various teaching methods and their sources of information for integrating CGIs into geography lessons. The fifth section explores geography teachers' perceived literacy on CGIs and how this influences their level of integration in classroom practice. The final section solicits teachers' views on the quality of Grade 9 and Grade 10 geography textbooks and the influence of these materials on the integration of CGIs in classroom teaching.

Your honest responses are essential to ensure the validity and reliability of this study. Therefore, please read each item carefully and respond sincerely based on your own experience and opinion. Kindly note that the data collected will be used solely for research purposes. All information provided will be treated with strict confidentiality, and no personal identifiers will be used. In the analysis, only pseudonyms will be employed to maintain anonymity.

Thank you for your cooperation in advance.

Teachers' personal information

Direction I: Put a thick mark (√) in the blank space about your educational background

- ✓ Qualification: BED/BA in Geography _____
- ✓ MA/Msc/MED in Geography and Environmental studies _____
- ✓ If any, mention it _____
- ✓ Have you taken training programs related to CGIs/environmental problems?Yes _ No _

Direction II: The following items are designed to assess geography teachers' level of integrating Contemporary Geographic Issues **(**soil erosion, land degradation, deforestation, climate change, environmental pollution, population growth, *and* unplanned urban development**) i**nto geography classroom instruction. Please indicate how frequently you integrate these issues by placing a tick mark (√) under the option that best represents your practice. 5 = Always; 4 = Usually; 3 = Sometimes; 2 = Rarely; 1 = Never

Note: If you do not have an opinion on any of the above-mentioned Contemporary Geographic Issues, please indicate this by writing *"I do not have any idea about this particular issue"* (for example, *soil erosion*) under the corresponding item

No.	Items: When I teach CGIs in geography lessons, I	Options				
		5	4	3	2	1
1	incorporate the definitions of CGIs					
3	do not explain the causes of CGIs					
4	discuss the impacts of CGIs on humans or environment.					
5	do not present the mitigation strategies of CGIs					
6	explain global policies and agreements on the issues					
7	do not make students become sensitive to their environment					
8	encourage students connect the issues with their own lives					
9	do not engage students in problem-solving activities outside the class					
10	play my own effort to develop students'attitude towards the environment					
11	do not employ different problem-solving activities related to CGIs.					
13	encourage students relate global CGIs with local issues					
14	present the lesson with real-life local case studies					
15	do not engage students in hands-on activities like waste burning, tree planting, or terracing					
16	do not encourage students work in groups to plan actions like tree planting, waste segregation, prevent land degradation to promote teamwork and real-life problem-solving skills.					
17	encourage students have field trips focusing on a particular CGI					
18	link classroom learning to community-based environmental protection activities					
19	encourage students to solve problems related to each issue					
20	do not integrate videos, documentaries, digital simulations, or online campaigns to increase students' creativity in addressing the environment					
21	do not access different materials to enhance students' knowledge of CGIs					
22	organize projects that require students to propose solutions to local problems of CGIs					
23	take students outside the classroom for activities such as visiting forests, waste, degraded lands etc.					

24	do not guide students to question the causes, effects and solutions of CGIs.					

Direction III: The items of the following questionnaire help to assess geography teachers' level of using different types of problem-based teaching methods when he/she integrate CGIs in geography classrooms. Put a tick mark (√) under always (5), usually (4), sometimes (3), rarely (2), or never (1) accordingly.

	Types of teaching methods used to teach CGIs	Options				
		5	4	3	2	1
1	Group discussion					
2	Role plays					
3	Lecture method					
4	Simulations					
5	Reflections					
6	Concept maps					
7	Demonstration					
8	Experiential learning					
9	Community engagement					
10	Field trips					
11	Brain storming					
12	Case study					
13	Use of realia					
14	Problem-based learning					

Direction IV: The items of the following questionnaire help to assess geography teachers' use of different sources of information when he/she integrates CGIs (Soil erosion/deforestation) in geography classrooms. Put a tick mark (√) under always (5), Usually (4), sometimes (3), Rarely(2), or Never (1) accordingly.

No.	Sources of information used to teach CGIs	Options				
		5	4	3	2	1

1	Radio					
2	Recently published materials					
3	Television					
4	Newspaper					
5	Local areas/real CGIs					
6	Magazines					
7	Maps					
8	Social media					
9	Outdoor activities carried out by the local community to protect the environment.					
10	Training programmes					
11	Recorded materials					
12	The Internet					
13	Environmental organizations					
14	Recently published materials					
15	Geography textbooks					
16	GIS					

Direction V: The following items are designed to assess geography teachers' perceived literacy of Contemporary Geographic Issues **(**soil erosion, land degradation, deforestation, climate change, environmental pollution, population growth, *and* unplanned urban development*)*. Specifically, the items focus on your **perceived knowledge, skills, attitudes, and participation** related to these issues. Please indicate the extent to which each statement reflects your perception by placing a tick mark (√) under the appropriate option. The scale is defined as follows: 5 = To a great extent 4 = To a moderate extent 3 = To a small extent 2 = To a very small extent 1 = Not at all.

Note: If you do not have an opinion on any of the above-mentioned Contemporary Geographic Issues (CGIs), please indicate this by writing *"I do not have any idea about this particular issue"* (for example, *soil erosion*) under the corresponding item

No	Items	Options				
		5	4	3	2	1
1	I feel that I know what each contemporary geographic issue means.					
2	I do not feel that I am knowledgeable about the nature of each CGI.					
3	I know each of the CGIs is a global problem.					
4	I do not feel I know the causes of each of the contemporary geographic issues.					
5	I feel that I know the consequences of each CGI.					
6	I do not feel that I am knowledgeable about the mitigation strategies of each CGI.					
7	I feel that I have good knowledge to persuade people to address the problems caused by each CGI.					
8	I feel that I am knowledgeable about the legal action taken to solve problems related to CGIs.					
9	I feel that the CGIs affect our environment all over the world.					
10	I do not know that each CGI affects the ecosystems in the world.					
11	I believe that citizens should learn more about the CGIs.					
12	I do not know that the impact of the CGIs will Never stop if we continue to operate as we do now.					
13	I know that protecting each CGI provides a better world for everyone.					
14	I feel that there are many sources of information to know about the CGIs.					
15	I feel that CGIs are global environmental problem.					
16	The main cause of each CGI is a human being..					
17	I am sensitive to the local CGIs					
18	I am not sensitive to global CGIs					
19	I am concerned about the causes of CGIs					
20	I am not concerned about the consequences of CGIs					

21	I appreciate people who solve problems related to CGIs					
22	I do not feel that everyone should be concerned about the rapid increase in population across the globe					
23	We should not be responsible for any causes of CGIs					
24	I love people who protect the problems related to CGIs					
25	I am concerned about the rapid increase in CGIs across the globe					
26	I feel that it is everyone's responsibility to protect the rapid increase of CGIs.					
27	I feel that my personal responsibility has its own role in decreasing the expansion of CGIs.					
28	I am not worried about the rapid increase in CGIs					
29	I feel that there should be more topics in the school curricula about each CGI.					
30	I am passionate to preven the rapid increase of CGIs.					
31	I do not appreciate those who are involved in solving problems related to CGIs					
32	I have a more ecological-friendly lifestyle.					
33	I feel the government should be responsible for the loss of biodiversity.					
34	I have an appreciation when I see green areas or forests.					
35	I feel sorry when I see degraded areas.					
36	I do not feel that caring for our environment is part of my personal duty.					
37	I do not feel that everyone should have active participation in environmentally friendly behaviors.					
38	I feel everyone should prioritize ecological well-being over material or economic gains.					
39	I am not hopeful that problems related to CGIs can be solved through human effort and cooperation.					
40	I do not have a desire to participate in environmental clubs to solve problems related to CGIs					

41	I feel happy when I visit forests.					
42	I do not feel sadness when I see pollution, deforestation or land degradation.					
43	I am worried about endangered species.					
44	I am worried about a large population with scarce resources.					
45	I feel that I can help stakeholders to solve problems related to CGIs.					
46	I amnot able to persuade people to solve problems related to CGIs					
47	I can use political action strategies to address the problems caused by CGI					
48	I am not able to use "legal action" strategies to solve problems related to CGIs					
49	I cannot use Eco- management strategies.					
50	I can enhance students' problem-solving skills in CGIs.					
51	I can motivate students to engage with problems related to CGIs.					
52	I do not feel that I have the ability to foster students' sense of responsibility for protecting the environment.					
53	When I teach CGIs, I can develop students' practical skills used to solve problems related to CGIs.					
54	When I teach CGIs, I am not able to enhance students' critical thinking skills.					
55	I can coordinate students to solve problems related to CGIs					
56	I am not able to bring real-life environmental problems into the classroom.					
57	I can present experiential learning opportunities of CGIs in the classroom.					
58	I can make students analyze the causes, impacts, and solutions of pressing issues.					
59	I cannot make students analyze the impacts of pressing issues,					
60	I cannot bring real-world CGIs into the classroom as a learning context					
61	I can engage students in hands-on, outdoor activities.					

62	I encourage the students to participate in community-based activities related to solving problems for CGIs					
63	I cannot make students creative in solving problems related to CGIs					
64	I can challenge students to apply their knowledge or skills to address local CGIs					
65	I empower students to take action on problems related to CGIs					
66	I do not motivate students to engage with solving environmental problems.					
67	I foster a sense of responsibility among people for protecting the environment,					
68	I forward different solution problems related to CGIs					
69	I cannot persuade people to solve problems related to each CGI.					
70	I do not report problems or violations related to CGIs to the concerned bodies.					
71	I use legal action strategies to solve problems related to CGIs					
72	I do not read different materials to develop my skills in solving.					
73	I do not use Eco- management strategies.					
74	I develop students' practical skills used to solve problems of CGIs					
75	I enhance students' critical thinking skills of CGIs					
76	I do not engage students with environmental problems in their local areas.					
77	I am active enough for the solutions of the CGIs.					
78	I engage students in service-learning activities.					
79	I gather evidence about problems related to CGIs					
80	I make scientific investigations on problems related to CGIs(eg. field studies, surveys) to understand environmental problems.					
81	I do not challenge students apply their knowledge or skills to solve problems of local CGIs					
82	I do not take part in activities related to the CGIs.					
83	I collaborate with students to solve problems related to CGIs					
84	I encourage stakeholders to protect the effects of each CGI.					

Direction VI: The items of the following questionnaire are designed to gather data on how you feel about the quality of Grade 9 and 10 Geography textbooks incorporating different aspects of contemporary geography issues, and assess how the material quality affects your integration of CGIs in the classroom. Please reflect the number that reflects what you feel. The numbers represent as follows. 5 = to a great extent; 4 = to a moderate extent; 3 = to a small extent; 2 = to a very small extent; 1 = not all

No.	Items: Grade 9 and Grade 10 Geography textbooks	Options				
		5	4	3	2	1
1	Provide up-to-date information about CGIs					
2	Consider the diverse learning styles of students to make CGIs more accessible.					
3	Contain problem-based teaching methods.					
4	Include hands-on activities used to engage students on each issue.					
5	Incorporate definitions of each issue.					
6	Present the causes of each CGI.					
7	Show the consequences of each CGI.					
8	Indicate mitigation strategies for each CGI.					
9	Present knowledge -based content of CGIs					
10	Enhance students' attitude towards each issue.					
11	Engage students in solving problems related to each CGI.					
12	Encourage students to relate the local CGI to the lesson.					
13	Give equal emphasis to learning all components of CGIs(knowledge, attitude, skills and participation)					
14	Give different sources of information about each CGI.					

Appendix B: Grade 9 Students' Survey Questionnaire

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

A survey questionnaire for Grade 9 Students

The objective of this questionnaire is to assess your levels of perceived literacy of CGIs, particularly on soil erosion, land degradation, deforestation, environmental pollution, and population growth. Thus, since your genuine response has a significant role for the validity and the reliability of my study, I kindly request you to read each item carefully and give your own genuine response on each item. All information you provide will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Only pseudonyms will be used in the analysis of the study.

Thank you for your cooperation in advance.

Direction I: The items of the following questionnaire helps to assess your perceived literacy of contemporary geographic issues(CGIs), particularly your perceived knowledge, attitudes, skills and intention to act on problems related to CGIs such as land degradation, soil erosion, deforestation, population growth and environmental pollution. Thus, put a tick mark (√) under the options given 1-5. **5 = To a great extent, 4 = To a moderate extent, 3 = To a small extent, 2 = To a very small extent, 1 = Not at all.**

Note: If you do not have an opinion on any of the above-mentioned Contemporary Geographic Issues (CGIs), please indicate this by writing *"I do not have any idea about this particular issue"* (for example, *soil erosion*) under the corresponding item

No.	Items	Options				
1	I feel that I know what each CGI means.					
2	I do not feel that I know the nature of each CGI.					
3	I do not know that the CGIs are our world's problems.					
4	I feel that I amnot knowledgeable about the causes of each CGI.					
5	I know the consequences of the CGIs.					
6	I do not know the mitigation strategies of the CGIs.					
7	I am aware that the CGIs are rapidly increasing.					
8	The widespread use of the CGIs affect the human beings and the environment.					
9	I know that protecting the CGIs provides a better world for everyone.					
10	I know that the main cause of the CGIs is human beings.					
11	I do not feel I am knowledgeable about the CGIs are global environmental problems.					
12	I do not feel that everyone should be responsible for protecting against problems related to CGIs					
13	We should be concerned about the rapid increase in the following CGIs					
14	I am not worried about the rapid increase of the following issues.					
15	I do not feel that there should be more topics about the following CGIs in geography class.					
16	I am not passionate about preventing the following CGI activities.					
17	I do not appreciate those who are involved in solving the following problems in his/her surroundings.					
18	I do not have an ecological-friendly lifestyle.					
19	I feel our government should be a responsible organ for the loss of biodiversity.					
20	I am not sensitive to the global CGIs					
21	I am concerned about the causes of CGIs					
22	I am not concerned about the consequences of CGIs					
23	I appreciate people who solve problems related to CGIs					

24	I do not feel that protecting the environment is everyone's responsibility.					
25	I am passionate about preventing the rapid increase of CGIs.					
26	I feel sad when I see degraded areas.					
27	I feel that caring for our environment is part of my personal duty.					
28	I do not have a desire to participate in environmental clubs to solve problems related to CGIs					
29	I am worried about the endangered species of plants.					
30	I am not worried about the large population with scarce resources.					
31	I am not worried when I see degraded land.					
32	I am worried when I see polluted areas(water, air or land)					
33	I am conscious of the loss of the loam soil.					
34	I cannot solve the problems of land degradation.					
35	I can solve problems of soil erosion.					
36	I am not able to persuade peers or people to solve problems related to each CGI					
37	I can motivate my classmates to engage with problems related to CGIs					
38	I cannot solve problems related to water or air pollution.					
39	I can solve problems related to population growth.					
40	I can foster my family and neighbours' sense of responsibility for protecting problems related to CGIs					
41	I am not a critical thinker to solve problems related to our environment.					
42	I am not able to bring real situations and environmental problems into the classroom.					
43	I can solve problems related to deforestation.					
44	I can analyze the causes, impacts, and solutions of CGIs					
45	I can analyze the causes of the CGIs.					
46	I cannot analyze the impacts of the CGIs					
47	I am able to apply my knowledge or skills to solve problems related to local CGIs					
48	I cannot make people become sensitive to problems related to CGIs					

49	I want to take part in activities used to solve problems related to CGIs					
50	I am not willing to report violations of environmental rules to the concerned bodies.					
51	I am willing to apply my knowledge or skills to solve problems related to local CGIs					
52	I do not read different materials to have good knowledge about CGIs.					
53	I do not have a desire to make people concerned about their environment.					
54	I read different materials to have good problem-solving skills related to CGIs					
55	I will be active enough in solving problems related to CGIs					
56	I am not intended to talk to the stakeholders about how to solve the following CGIs					
57	I have a desire to participate in community activities that bring solutions to the problems of CGIs					
58	I am not willing to participate in school-wide activities used to solve problems related to CGIs					
59	I will collaborate with other students to clean our environment or the school compound.					
60	I present real-life environmental problems in the classroom when I learn CGIs					
61	I am not intended to solve problems related to deforestation in my local area.					
62	When I see degraded land, I analyze its causes or solutions.					
63	I am not willing to inform my neighbours about the impacts of population growth on our environment.					
64	I am willing to solve problems related to water pollution in my local areas.					

Appendix C: Grade 10 Students' Survey Questionnaire

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

A survey questionnaire for Grade 10 Students

The objective of this questionnaire assesses your levels of perceived literacy of CGIs, particularly on climate change, environmental pollution, unplanned urbanization, environmental pollution, and population growth. Thus, since your genuine response has a significant role for the validity and the reliability of my study, I kindly request you to read each item carefully and give your own genuine response on each item. All information you provide will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Only pseudonyms will be used in the analysis of the study.

Thank you for your cooperation in advance.

Direction I: The items of the following questionnaire help to assess your perceived literacy of contemporary geographic issues(CGIs), particularly your perceived knowledge, attitudes, skills and intention to act on problems related to CGIs such as environmental pollution, unplanned urbanization, environmental pollution, and population growth. Thus, put a tick mark (√) under the options given 1-5. **5 = To a great extent 4 = To a moderate extent 3 = To a small extent 2 = To a very small extent 1 = Not at all.**

Note: If you do not have an opinion on any of the above-mentioned Contemporary Geographic Issues (CGIs), please indicate this by writing *"I do not have any idea about this particular issue"* (for example, *soil erosion*) under the corresponding item

No.	Items	Options				
		5	4	3	2	1
1	I feel that I know what each CGI mean					
2	I do not feel that I know the nature of each CGI					
3	I do not know those CGIs are our world problems					
4	I feel that I am knowledgeable about the causes of each CGI.					
5	I do not know the consequences of the CGIs.					
6	I know the mitigation strategies of the CGIs.					
7	I am not aware that these CGIs are rapidly increasing.					
8	I know that the widespread use of the CGIs affect the human beings and the environment.					
9	I do not feel that we should be concerned about the rapid increase in these CGIs					
10	I am worried about the rapid increase in these CGIs					
11	I do not feel that there should be more topics about each CGI.					
12	I am not passionate about protecting problems related to each CGI.					
13	I appreciate one who is involved in solving the problems of each CGI in his/her surroundings					
14	I feel our government should be a responsible organ for the rapid increase of these CGIs					
15	I am not concerned about the causes of the CGIs					
16	I am concerned about the consequences of CGIs					
17	I do not appreciate people who solve problems related to CGIs					
18	I feel that it is everyone's responsibility to protect the rapid increase of CGIs.					
19	I am not passionate about preventing the rapid increase of CGIs.					
20	I do not feel sad when I see polluted areas.					

21	I feel that caring for our environment is part of my personal duty.					
22	I am not worried about global climate change.					
23	I cannot solve problems related to each CGI.					
24	I can persuade peers, or people to solve problems related to each CGI					
25	I cannot motivate my classmates to engage with problems related to CGIs					
26	I have the ability to foster my family's or neighbours' sense of responsibility for protecting problems related to CGIs					
27	I am not a critical thinker to solve problems related to our environment.					
28	I am not able to bring real situations to each CGI into the classroom.					
29	I can analyze the causes, impacts, or solutions of each CGI.					
30	I am not able to apply my knowledge or skills to solve problems related to local CGIs					
31	I cannot make people sensitive to any of the problems of CGIs					
32	I can move people to solve problems related to each CGI.					
33	I am not willing to apply my knowledge or skills to solve problems related to local CGIs					
34	I read different materials to have good knowledge about CGIs.					
35	I do not have a desire to make people concerned about each CGI.					
36	I read different materials to have good problem-solving skills related to CGIs					
37	I will not be active enough in raising awareness about each CGI					
38	I am intended to talk to the stakeholders about how to solve problems related to each CGI					
39	I have a desire to participate in community activities that bring solutions to the problems of CGIs					
40	I will not collaborate with other students to clean our environment or the school compound.					

41	I present real-life environmental problems in the classroom when I learn CGIs					
42	I am not intended to solve problems related to population growth.					
43	I will motivate my neighbours to plant trees to protect against problems related to climate change, like drought, famine.					
44	I am not willing to inform my neighbours about the impacts of population growth on our environment.					

Appendix D: Grade 9 students' In-depth Interview Items(English Version)

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

In-depth interview questions for Grade 9 students

Dear participant, my name is Worknesh Engidayehu, a Doctor of Education (DED) in Geography and Environmental Studies candidate at Bahir Dar University. Presently, I am doing research for my DED dissertation focusing on "**Integration of Contemporary Geographic Issues in Geography Curricula Materials and Classrooms: East Gojjam and Awi Zone Secondary Schools in Focus.** Thus, one of my data collection instruments is an in-depth interview. This interview aims to gather data on your views about how well the Grade 9 Geography textbook integrates CGIs, such as soil erosion, deforestation, land degradation, population growth and environmental pollution. The results of this interview will be used for research purposes only. All information you provide will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Hence, I kindly request you to participate in this interview conversation freely and confidently.

Thank you for your cooperation in advance.

1. Do you think that the content items, such as definitions/nature, causes, consequences, and solutions integrated under each contemporary geographic issue, such as soil erosion, deforestation, land degradation, environmental pollution, and population growth, presented in the way they enhance students' knowledge, attitudes, skills, and participation concerning each CGI? If yes, in what ways? If no, which aspects require greater emphasis?
2. Do you think that the instructional activities incorporated under each contemporary geographic issue (CGIs) are designed in a way that equally enhances students' knowledge? Skills, attitudes and participation of CGIs? If yes, how? If no, which components require greater emphasis?
3. When your geography teacher integrated contemporary geographic issues into the geography classroom, in which part did you show improvement? Your knowledge, problem-solving skills, attitudes or participation in contemporary geographic issues?

Appendix E: Grade 9 Students' In-depth Interview Items(Amharic Version)

ባህር ዳር ዩኒቨርሲቲ

ማህበራዊ ሳይንስ ፋኩሊቲ

ጅኦግራፊና አካባቢ ጥናት ትምህርት ክፍል

ለ 9ኛ ክፍል ተማሪዎች የሚቀርቡየቃለ ማኪይቅ ጥያቄዎች

ውድ የዚህ ጥናት ተሳታፊዎች፣ ስሜወርቅነሽ አንግዳዩ ይባላል፡፡ በባህር ዳር ዩኒቨርሲቲ በጅኦግራፊና አካባቢ ጥናት ማስተሚር (Doctor of Education in Geography and Environmental Studies) የሶስተኛ ዲግሪ ተማሪ ነኝ፡፡ በአሁኑ ሰዓት ለዚህ ለሶስተኛ ዲገሪ የመሚቂያ የማመያ ጽሁፌን "The Integration of Contemporary Geographic Issues in Secondary School Geography Textbook and Classroom Practices: East Gojjam and Awi Administrative Zones in Focus" በሜል ርእስ ላይ በማራት ላይ እገኛለሁ፡፡ ለዚህ ጥናት አንደኛው የሚጃ ማሰብሰቢያ ማሪያዬ ጥልቅ ቃለ ማኪይቅ(in-depth interview) ነው ፡ ስለዚህ የዚህ ቃለ ማኪይቅ ዋና አላማ የ9ኛ ክፍል የጅኦገራፊ የተማሪዎች የመሚያ ማጽሃፍ(textbook) የተለያዩ ወቅታዊ ጅኦግራፈአዊ ጉዳዮችን(Contemporary Geographic Issues) ማለትምየአፈር ማሸርሸር፤ የሜሬት ሚራቆት፤ የደን ማጨፍጨፍ፤የህዝብ ብዛት ማጨምር፤ እና የአካባቢ ብክለት በምን አይነት ሁኔታና ማጠንና አካቱል የሜል ሚጃ ለማሰብሰብ ነው ፡ ስለዚህ የአንተ/ች ትክክለኛ ምላሽ ጥናቱን ውጤታማ ስለሚያደርገው በሚከየቁት ጥያቄዎች ማሪት አግባብንት ያለው ሜልስ ትሰጠኝ/ትሰጪኝ ዘንድ በአክብሮት እጠይቃለሁ፡፡ የተሰበሰበው ሚጃም ለጥናቱ ዓላማ ብቻ እንደሚውልና ሚጃው ሲተነተንም የአንተ/የአንች ስም አንደማይጠቀስና ሚጃውም በኮድ አንደሚተነተን በአፅንዖት ልገልጽልህ/ሽ እዎዳለሁ፡፡ ስለዚህ ያለህን/ሽን ሃሳብ በነፃነት እንድትገልፅልኝ/አንድትገልጪልኝ በአክብሮት እጠይቀለሁ፡፡

በቅድሚያ ስለትብብርህ/ሽ በጣምአማሰግናለሁ፡፡

1. 9ኛ ክፍል የጅኦግራፊ ማጽሐፍ ላይ በወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮችን(CGIs) ስር ማለትምየአፈር ማሸርሸር፤ የሜሬት ሚራቆት፤ የደን ማጨፍጨፍ፤የህዝብ ብዛት ማጨምር፤ እና የአካባቢ ብክለት ስር ያሉ ይዘቶች ለምሳሌ የአፈር ማሸርሸር ምክንያቶች፤ ተጽኖዎች፤ ማፍተሄዎች ወዘተ ያአንነተን ዕውቀት፤አማላካከት፤ ችግሮችን የማፍታት ችሎታእና ችግሮችን ለማፍታት ያለህ ተሳትፎ እኩል በሆነ ማገድ ጨምረዋል ብለህ ታምናለህ/ሽ? ከጨምሩ እንዴት? በእኩል ማጠን ካልጨምሩስ ከየትኛው ላይየማያተኩሩ ይማስልሀል?
2. በ9ኛ ክፍል የጅኦገራፊ ማጽሐፍ ላይ በወቅታዊ ጅኦግራፈአዊ ጉዳዮች(CGIs) ስር ያሉ ተግባራት(Instructional Activities) አራቱንም ወቅታዊ ጅኦግራፈአዊ ጉዳዮች የመሚር ዓላማ ማለትም የተማሪዎችን ወቅታዊ ጅኦግራፈአዊ ጉዳዮች ዕውቀት፤አማላካከት፤ ችግሮችን የማፍታት ችሎታ፤እና ችግሮችን ለማፍታት ያለቸወን ተሳትፎ እኩል በሆነ

መንገድ ለሜጨሚር እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ሽ? ከሆን እንዴት? በእኩል ማጠን ካልቀረቡስ ከየትኛውላይ የሚያተኩሩ ይመስልሃል/ሽ ?

3. የአንተ/የአንች የጅኦግራፊ መመህር ስለ ወቀታዊ ጅኦግራፊያዊ ጉዳዮች ሲያስተምርህ፣ የትኞቹ ላይ ነው አንተ/አንች ማሻሻል ያሳየኸው; ስለ ወቅታዊ ጅኦግራፊያዊ እውቀት፤ አጫላካከት፤ ክህሎት ወይስ ተሳትፎ ላይ

Appendix F: Grade 10 students' In-depth Interview Items(English Version

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

In-depth interview questions for Grade 10 students

Dear participant, my name is Worknesh Engidayehu, a Doctor of Education (DED) in Geography and Environmental Studies candidate at Bahir Dar University. Presently, I am doing research for my DED dissertation focusing on "**Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks and Classroom Practice: East Gojjam and Awi Administrative Zones in Focus.** Thus, one of my data collection instruments is an in-depth interview. This interview aims to gather data on your views about how well the Grade 10 Geography textbook integrates CGIs, such as population growth, pollution, climate change and unplanned urbanization. The results of this interview will be used for research purposes only. All information you provide will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Hence, I kindly request you to participate in this interview conversation freely and confidently.

Thank you for your cooperation in advance.

1. ች you think that the content items integrated under each contemporary geographic issue definitions/nature, causes, consequences, and solutions of population growth, pollution, climate change and unplanned urbanization are presented in a way that effectively enhances your knowledge, attitudes, skills, and participation concerning each CGI? If yes, in what ways? If no, which aspects require greater emphasis?

2. Do you think the activities related to contemporary geographic issues (CGIs) are designed in a way that equally enhances your knowledge, attitudes, problem-solving skills, and participation in each CGI? If you say “Yes”, how? If you say “No”, which components require greater emphasis?
3. When your geography teacher integrated contemporary geographic issues into the geography classroom, in which part did you show improvement? In your knowledge, problem-solving skills, attitudes or participation in contemporary geographic issues?

Appendix G: Grade 10 students’ In-depth Interview Items(Amharic Version)

ባህር ዳር ዩኒቨርሲቲ

ማህበራዊ ሳይንስ ፋኩሊቲ

ጅኦግራፊና አካባቢ ጥናት ትምህርት ክፍል

ለ 10ኛ ክፍል ተማሪዎች የ ሚቋርጡ የ ቃለ ማኪይቅ ጥያቄዎች

ውድ የዚህ ጥናት ተሳታፊዎች፣ ስሜወርቅነሽ አንግዳዩ ይባላል፡ ፡ በባህር ዳር ዩኒቨርሲቲ በጅኦግራፊና አካባቢ ጥናት ማስተሚ(Doctor of Education in Geography and Environmental Studies) የሶስተኛ ዲግሪ ተማሪ ነኝ፡ ፡ በአሁኑ ሰዓት ለዚህ ለሶስተኛ ዲገሪ የ መመረቂያ የ ማመልያ ጽሁፌን “Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks: East Gojjam and Awi Administrative Zones in Focus” በ ማል ርእስ ላይ በማከራት ላይ አገኛለሁ፡ ፡ ለዚህ ጥናት አንደኛውየ ሚጀ ማስብሰቢያ ማሳሪያዬ ጥልቅ ቃለ ማኪይቅ(In-depth Interview) ነው፡ ፡ ስለዚህ የዚህ ቃለ ማኪይቅ ዋና አላማ የ 10ኛ ክፍል የ ጅኦገራፊ የ ተማሪዎች የ መረጃ ማጽሃፍ(textbook) የ ተለያዩ ወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮችን (CGIs) ማለት የ ህዝብ ብዛት ሜጨመር፤ የ አየር ንብረት ለውጥ፤ ከእቅድ ውጭየ ከተሞች ማስፋፋትና፤ የ አካባቢ ብክለት እና የ አካባቢ ብክለት በምን አይነት ሁኔታና ማከንና አካቱል የ ማል ሚጀ ለማሳብሰብ ነው፡ ፡ ስለዚህ የ አንተ/ች ትክክለኛ ምላሽ ጥናቱን ውጤታማ ስለ ሚያደርገው በ ሚከየቁት ጥያቄዎች ማሳርት አግባብንት ያለው ማል ስ ትሰጠኝ/ትሰጭኝ ዘንድ በአክብሮት እጠይቃለሁ፡ ፡ የ ተሰበሰበው ሚጀም ለጥናቱ ዓላማ ብቻ እንደ ሚውልና ሚጀው ሲተነ ተንም የ አንተ/የ አንች ስም አንደ ሚይጠቀስና ሚጀውም በኮድ አንደ ሚቱነ ተን በአፅንዖት ልገልጽልህ/ሽ እዎዳለሁ፡ ፡ ስለዚህ ያለህን/ሽን ሃሳብ በነፃነት እንድትገልፅልኝ/አንድትገልጭልኝ በአክብሮት እጠይቀለሁ፡ ፡

በቅድሚያ ስለትብብርህ/ሽ በጣምአማሳግናለሁ፡ ፡

1. 10ኛ ክፍል የ ጅኦገራፊ ማጽሐፍ ላይ በወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮችን (CGIs) ስር ያሉ ይዘቶች ለምሳሌ የ አየር ንብረት ለውጥ ምክንያቶች፤ ተጽኖዎች፤ ሜቱሄዎች ወዘተ ያአንነተን/ያንችን ዕውቀት፤ አሜላካከት፤ ችግሮችን

የ ሞ ፍ ታ ት ች ሎ ታ ፤ እ ና ች ግ ሮ ች ን ለ ሞ ፍ ታ ት ያ ለ ህ ን /ሽ ን ተ ሳ ት ፎ እ ኩ ል በ ሆ ነ መ ን ገ ድ ጨ ም ሪ ዋ ል ብ ለ ህ /ሽ ታ ም ና ለ ህ /ታ ም ኛ ለ ሽ ? ከ ጨ ም ሩ እ ን ዴ ት ? በ እ ኩ ል ማ ከ ን ካ ል ጨ ም ሩ ስ ከ የ ት ኛ ው ላ ይ የ ሚ ያ ተ ኩ ሩ ይ ማ ክ ል ሃ ል /ሻ ል ?

2. በ 10ኛ ክ ፍ ል የ ጅ ኦ ግ ራ ፊ መ ጽ ሐ ፍ ላ ይ በ ወ ቅ ታ ዊ ና አ ን ገ ብ ጋ ቢ ጅ ኦ ግ ራ ፈ አ ዊ ጉ ዳ ዮ ች (CGIs) ስ ር ያ ሉ ተ ግ ባ ራ ት (Activities) አ ራ ቱ ን ም ወ ቅ ታ ዊ ጅ ኦ ግ ራ ፈ አ ዊ ጉ ዳ ዮ ች የ መ ሚ ር ዓ ላ ማ ማ ሟ ላ ት ም የ ተ ሚ ዎ ች ን ወ ቅ ታ ዊ ጅ ኦ ግ ራ ፊ ያ ዊ ጉ ዳ ዮ ች ዕ ው ቀ ት ፤ አ ማ ላ ካ ከ ት ፤ ች ግ ሮ ች ን የ ሞ ፍ ታ ት ች ሎ ታ ፤ እ ና ች ግ ሮ ች ን ለ ሞ ፍ ታ ት ያ ለ ቸ ው ን ተ ሳ ት ፎ እ ኩ ል በ ሆ ነ መ ን ገ ድ ለ ሜ ጨ ም ር ቀ ር በ ዋ ል ብ ለ ህ ታ ም ና ለ ህ /ታ ም ኛ ለ ሽ ? ከ ሆ ን እ ን ዴ ት ? በ እ ኩ ል ማ ከ ን ካ ል ቀ ረ ቡ ስ ከ የ ት ኛ ው ላ ይ የ ሚ ያ ተ ኩ ሩ ይ ማ ክ ል ሃ ል /ይ ማ ክ ል ሻ ል ?
3. የ አ ን ተ /የ አ ን ች የ ጅ ኦ ግ ራ ፊ መ ም ህ ር ስ ለ ወ ቀ ታ ዊ ጅ ኦ ግ ራ ፊ ያ ዊ ጉ ዳ ዮ ች ሲ ያ ስ ተ ም ር ህ ፣ የ ት ኞ ቹ ላ ይ ነ ው አ ን ተ /አ ን ች ማ ሻ ሻ ል ያ ሳ የ ኸ ው ፣ ስ ለ ወ ቅ ታ ዊ ጅ ኦ ግ ራ ፊ ያ ዊ እ ው ቀ ት ፤ አ ማ ላ ካ ከ ት ፤ ክ ህ ሎ ት ወ ይ ስ ተ ሳ ት ፎ ላ ይ

Appendix H: Teacher In-depth Interview Items on Grade 9 Geography Textbook and Classrooms

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

In-Depth Interview Questions for Geography Teachers

Dear participant, my name is Worknesh Engidayehu, a Doctor of Education (DED) in geography and environmental studies candidate at Bahir Dar University. Presently, I am doing research for my DED dissertation focusing on "**The Integration of Contemporary Geographic Issues in Geography Curricula Materials and Classrooms: East Gojjam Secondary Schools in Focus.** Thus, one of my data collection instruments is an in-depth interview. This interview aims to gather data on how secondary school geography teachers integrate CGIs. such as soil erosion, deforestation, land degradation, population growth and environmental pollution.The results of this interview will be used for research purposes only. All information you provide me will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Hence, I kindly request you to participate in this interview conversation freely and confidently.

Thank you for your cooperation in advance.

1. Do you think the CGI-related content in the Grade 9 Geography textbook is presented in a way that effectively enhances students' knowledge, attitudes, skills, and participation concerning CGIs such as soil erosion, deforestation, land degradation, environmental

pollution, and population growth? If yes, in what ways? If no, which aspects require greater emphasis?

2. Do you believe that the objectives related to CGIs in the Grade 9 Geography textbook are formulated in a way that promotes students' literacy of CGIs, specifically their knowledge, attitudes, problem-solving skills, and participation equally? If yes, in what ways? If no, which aspects should receive greater emphasis?
3. Do you think the activities related to contemporary geographic issues (CGIs) are designed in a way that equally enhances the four components of CGI literacy—students' knowledge, attitudes, problem-solving skills, and participation? If yes, how? If no, which components require greater emphasis?
4. What are the common challenges that affect your integration of CGIs in Geography classrooms?

Appendix I: Teachers' In-depth Interview Items on Grade 9 Geography Textbooks (English Version)

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

In-Depth Interview Questions for Geography Teachers

Dear participant, my name is Worknesh Engidayehu, a Doctor of Education (DED) in geography and environmental studies candidate at Bahir Dar University. Presently, I am doing research for my DED dissertation focusing on "**The Integration of Contemporary Geographic Issues in Geography Curricula Materials and Classrooms: East Gojjam Secondary Schools in Focus.** Thus, one of my data collection instruments is an in-depth interview. This interview aims to gather data on how the Grade 9 Geography textbook integrates CGIs, particularly soil erosion, deforestation, land degradation, population growth and environmental pollution. The results of this interview will be used for research purposes only. All information you provide me will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Hence, I kindly request you to participate in this interview conversation freely and confidently.

Thank you for your cooperation in advance.

1. Do you think the CGI-related content in the Grade 9 Geography textbook is presented in a way that effectively enhances students' knowledge, attitudes, skills, and participation concerning CGIs such as soil erosion, deforestation, land degradation, environmental pollution, and population growth? If yes, in what ways? If no, which aspects require greater emphasis?
2. Do you believe that the objectives related to CGIs in the Grade 9 Geography textbook are formulated in a way that promotes students' literacy of CGIs, specifically their knowledge, attitudes, problem-solving skills, and participation equally? If Yes, in what ways? If no, which aspects should receive greater emphasis?
3. Do you think the activities related to contemporary geographic issues (CGIs) are designed in a way that equally enhances the four components of CGI literacy—students' knowledge, attitudes, problem-solving skills, and participation? If yes, how? If no, which components require greater emphasis?
4. What are the common challenges that affect your integration of CGIs in Geography classrooms? How do these challenges affect your integration?

Appendix J: Teachers' In-depth Interview Items on Grade 9 Geography textbooks and Classrroms(Amharic Version)

ባህር ዳር ዩኒቨርሲቲ

ማህበራዊ ሳይንስ ፋኩሊቲ

ጅኦግራፊና አካባቢ ጥናት ትምህርት ክፍል

ለ 9ኛ ክፍል ጅኦግራፊ ማሞህራን የ ሞቋርቡ ማኪይቆች

ውድ የዚህ ጥናት ተሳታፊዎች፣ ስሜወርቅነሽ አንግዳዩ ይባላል፡፡ በባህር ዳር ዩኒቨርሲቲ በጅኦግራፊና አካባቢ ጥናት ማስተሞር( ) የሶስተኛ ዲግሪ ተሞሪ ነኝ፡፡ በአሁኑ ሰዓት ለዚህ ለሶስተኛ ዲገሪ የ ሞሞረቂያ የ ሞሞያ ጽሁፌን "The Integration of Contemporary Geographic Issues in Geography Curricula Materials and Classrooms: East Gojjam Secondary Schools in Focus" በ ሞሌ ርእስ ላይ በ ማስራት ላይ አገኛለሁ፡፡ ለዚህ ጥናት አንደኛው የ ሚጃ ማሳብሰቢያ ማሳሪያዬ ጥልቅ ቃለ ማኪይቅ() ነው ፡ ስለዚህ የዚህ ቃለ ማኪይቅ ዋና አላማ የ9ኛ ክፍል የ ጅኦገራፊ የተሞሪዎች የ ሞሟያ ሞጽሃፍ() የተለያዩ ወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮችን() ማለትም የአፈር ማሸርሸር፤ የ ሜት ሞራቆት፤ የደን ሜጨፍጨፍ፤

የህዝብ ብዛት ሜጨምር፤ እና የአካባቢ ብክለት በምን አይነት ሁኔታና ማከንና አካቱል የሚል ሚጃ ለማብሰብነው ፡ ስለዚህ የአንተ/ች ትክክለኛ ምላሽ ጥናቱን ውጤታማስለሚያደርገው በሚከየቁት ጥያቄዎች ማብርት አግባብንት ያለው ሜልስ ትሰጠኝ/ትሰጪ ዘንድ በአክብሮት እጠይቃለሁ፡ ፡ የተሰበሰበው ሚጃም ለጥናቱ ዓላማ ብቻ እንደሚውልና ሚጃው ሲተነ ተንም የአንተ/የአንች ስም አንደማይጠቀስና ሚጃውም በኮድ አንደሚተነተን በአፅንዖት ልገልጽልህ/ሽ እዎዳለሁ፡ ፡ ስለዚህ ያለህን/ሽን ሃሳብ በነፃነት እንድትገልፅልኝ/አንድትገልጪልኝ በአክብሮት እጠይቀለሁ፡ ፡

በቅድሚያ ስለትብብርህ/ሽ በጣምአመሰግናለሁ፡ ፡

1. በ9ኛ ክፍል የጅኦግራፊ ሞጁሉ ላይ የተካተቱ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች(Contemporary Geographic Issues)ማለትም የአፈር ማሸርሸር፤ የሜት ሚራቆት፤ የደን ሜጨፍጨፍ፤የህዝብ ብዛት ሜጨምር፤ እና የአካባቢ ብክለት አለም አቀፋዊ ወይም አገራዊ ችግሮችን ያካተቱ ናቸው ብለህ/ብለሽ ታምናለህ/ታምኛለሽ? በእነዚህ ጉዳዮች ስር ማለትም የተካተቱ ይዘቶች ለምሳሌ የአፈር ማሸርሸር ምክንያቶች፤ ተጽኖዎች፤ ማፍተሄዎች ወዘተ የተማሪዎችን ዕውቀት፤አማላካከት፤ ችግሮችን የማፍታት ክህሎት/ችሎታ፤ እና ችግሮችን ለማፍታት ያላቸውን ተሳትፎ እኩል በሆነ መንገድ ለሜጨር የተካተቱ ናቸውብለህ ታምናለህ/ታምኛለሽ? ከጨሩ እንዴት? በእኩል ማከን ካልጨሩስ ከየትኛውላይ የሚያተኩሩ ይማከሉሃል/ይማከሉሻል?
2. በ9ኛ ክፍል የጅኦገራፊ ሞጁሉ ላይ በወቅታዊ ጅኦግራፈአዊ ጉዳዮች(CGIs) ስር ማለትም በአፈር ማሸርሸር፤ የሜት ሚራቆት፤ የደን ሜጨፍጨፍ፤የህዝብ ብዛት ሜጨምር፤ እና የአካባቢ ብክለት ያሉ የትምህርት ዓላማዎች(Instructional objectives) አራቱንም ወቅታዊ ጅኦግራፈአዊ ጉዳዮች የመር ዓላማዎችን ማለትም የተማሪዎችን ዕውቀት፤አማላካከት፤ ችግሮችን የማፍታት ክህሎት፤ እና ተሳትፎ እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ሽ? ከሆነ እንዴት? በእኩል ማከን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይማከልሃል/ሻል?
3. በ9ኛ ክፍል የጅኦግራፊ ሞጁሉ ላይ በወቅታዊ ጅኦግራፈአዊ ጉዳዮች(CGIs) ስር ማለትም በአፈር ማሸርሸር፤ የሜት ሚራቆት፤ የደን ሜጨፍጨፍ፤የህዝብ ብዛት ሜጨምር፤ እና የአካባቢ ብክለት ያሉ ተግባራት(Instractional Activities) አራቱንም የወቅታዊ ጅኦግራፈአዊ ጉዳዮች የመር ዓላማ ማለትም የተማሪዎችን ወቅታዊ ጅኦግራፈአዊ ጉዳዮች(CGIs) ዕውቀት፤አማላካከት፤ ችግሮችን የማፍታት ክህሎት፤ እና ችግሮችን ለማፍታት ያለቸወን ተሳትፎ እኩል በሆነ መንገድ ለሜጨር እኩል በሆነ

መንገድ ቀርበዋል ብለህ ታምናለህ/ታምኛለሽ? ከሆን እንዴት? በእኩል ማከን ካልቀረቡስ ከየትኛውላይየሚያተኩሩ ይማክልሃል/ሻል?

4. ከላይ የተጠቀሱትን ወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮች በክፍል ውስጥ ስታስተምር የገጠመህ ዋና ዋና ችግሮች ምን ምን ናቸው? እነዚህ ችግሮች እንዴት ነው ተጥኖ ያሳደሩብህ/ሽ?

Appendix K: Teachers' In-depth Interview Items on Grade 10 Geography Textbooks (English Version)

Bahir Dar University

Faculty of Social Sciences

Department of Geography and Environmental Studies

In-Depth Interview Questions for Geography Teachers

Dear participant, my name is Worknesh Engidayehu, a Doctor of Education (DED) in geography and environmental studies candidate at Bahir Dar University. Presently, I am doing research for my DED dissertation focusing on "**The Integration of Contemporary Geographic Issues in Geography Curricula Materials and Classrooms: East Gojjam Secondary Schools in Focus.** Thus, one of my data collection instruments is an in-depth interview. This interview aims to gather data on how secondary school geography teachers integrate CGIs. such as population growth, pollution, climate change and unplanned urbanization. The results of this interview will be used for research purposes only. All information you provide me will be kept confidential, and there will be no way that your responses will be explicitly stated using your name. Hence, I kindly request you to participate in this interview conversation freely and confidently.

Thank you for your cooperation in advance.

1. Do you think the content items(definitions, causes, consequences and solutions) of each contemporary geographic issue integrated in the Grade 9 Geography textbook, such as soil erosion, deforestation, land degradation, environmental pollution, and population growth, are presented in a way that effectively enhances students' knowledge, attitudes, skills, and participation concerning contemporary geographic issues? If you say Yes, in what ways? If no, why?
2. Do you believe that the objectives related to CGIs in the Grade 9 Geography textbook are formulated in a way that promotes students' literacy of CGIs, specifically their knowledge, attitudes, problem-solving skills, and participation equally? If Yes, in what ways? If no, which aspects should receive greater emphasis?
3. Do you think the activities related to contemporary geographic issues (CGIs) are designed in a way that equally enhances the four components of CGI literacy—students' knowledge, attitudes, problem-solving skills, and participation? If yes, how? If no, which components require greater emphasis?
4. What are the common challenges that affect your integration of CGIs in Geography classrooms? How do these challenges affect your integration?

Appendix L: Teachers' In-depth Interview Items on Grade 10 Geography text-books(Amharic Version)

ባህር ዳር ዩኒቨርሲቲ

ማህበራዊ ሳይንስ ፋኩሊቲ

ጅኦግራፊና አካባቢ ጥናት ትምህርት ክፍል

ለ10ኛ ክፍል ማምህራን የቀረቡ ማጥይቆች

ውድ የዚህ ጥናት ተሳታፊዎች፣ ስሜወርቅነሽ አንግዳዩ ይባላል፡፡ በባህር ዳር ዩኒቨርሲቲ በጅኦግራፊና አካባቢ ጥናት ማስተሚ(DED in Geography and Environmental Studies) የሶስተኛ ዲግሪ ተሚሪ ነኝ፡፡ በአሁኑ ሰዓት ለዚህ ለሶስተኛ ዲገሪ የመሚቂያ የማምቃ ጽሁፌን "The Integration of Contemporary Geographic Issues in Secondary School Geography Textbooks and Classroom Practices: East Gojjam Secondary Schools in Focus" በማል ርእስ ላይ በማራት ላይ አገኛለሁ፡፡ ለዚህ ጥናት አንደኛውየሚጃ ማሳብሰቢያ መሳሪያዬ ጥልቅ ቃለ ማጠይቅ ነው፡ ስለዚህ የዚህ ቃለ ማጠይቅ ዋና አላማ የ10ኛ ክፍል የጅኦገራፊ የተሚዎች የመጮያ ማጽሃፍ(Textbook) የተለያዩ ወቅታዊና ጅኦግራፈአዊ ጉዳዮችን(Contemporary Geographic Issues) ማለት የህዝብ ብዛት ማጨመር፤ የአየር ንብረት ለውጥ፤ ያለ እቅድ የከተሞች ማስፋፋትና፤ የአካባቢ ብክለትን በምን አይነት ሁኔታና ማጠንና አካቶ ይዟል የማል ሚጃ ለማሳብሰብ ነው፡ ስለዚህ የአንተ/ች ትክክለኛ ምላሽ ጥናቱን ውጤታማ ስለማያደርገው በማጠየቁት ጥያቄዎች ማሳርት አግባብንት ያለው ማልስ ትሰጠኝ/ትሰጭኝ ዘንድ በአክብሮት እጠይቃለሁ፡ የተሰበሰበው ሚጃም ለጥናቱ ዓላማ ብቻ እንደሚውልና ሚጃው ሲተነ ተንም የአንተ/የአንች ስም አንደሚይጠቀስና ሚጃውም በኮድ አንደሚሱነ ተን በአፅንዖት ልገልጽልህ/ሽ እዎዳለሁ፡ ስለዚህ ያለህን/ሽን ሃሳብ በነፃነት እንድትገልፅልኝ/አንድትገልጭልኝ በአክብሮት እጠይቀለሁ፡

በቅድሚያ ስለትብብርከኝ/ሽኝ በጣምአሳግናለሁ፡

1. በ10ኛ ክፍል የጅኦግራፊ ማጽሐፍ ላይ የተካተቱ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች(Contemporary Geographic Issues) ማለትም የህዝብ ብዛት ማጨመር፤ የአየር ንብረት ለውጥ፤ ከእቅድ ውጭየ ከተሞች ማስፋፋትና፤ የአካባቢ ብክለት አለምአቀፋዊ ወይም አገራዊ ችግሮችን ያካተቱ ናቸው ብለህ/ብለሽ ታምናለህ/ታምኛለሽ? በእነዚህ

ጉዳዮችን(CGIs) ስር ያሉ ይዘቶች ለምሳሌ የአየር ንብረት ለውጥ ምክንያቶች፤ ተጽኖዎች፤ ሞፍተሄዎች ወዘተ የተሚዎችን ዕውቀት፤ አሚላካከት፤ ችግሮችን የሞፍታት ችሎታ፤ እና ችግሮችን ለሞፍታት ያላቸወን ተሳትፎ እኩል በሆነ መንገድ ይጨሞታለ ብለህ/ሽ ታምናለህ/ሽ? ከጨሞ እንዴት? በእኩል ሞከን ካልጨሞስ ከየትኛውላይየሚያተኩሩ ይሞክልሀል?

2. በ10ኛ ክፍል የጅኦግራፊ ሞጽሐፍ ላይ በወቅታዊ ጅኦግራፈአዊ ጉዳዮች(Contemporary Geographic Issues) ስር ሞለትም የህዝብ ብዛት ሜጨሞር፤ የአየር ንብረት ለውጥ፤ ከእቅድ ውጭ የከተሞች ሞስፋፋትና፤ የአካባቢ ብክለት የተካተቱ የትምህርት ዓላሞች(Learning Objectives) አራቱንም ወቅታዊ ጅኦግራፈአዊ ጉዳዮች(CGIs)የ ሞሞር ዓላማ ሞለትም የተሚዎችን ወቅታዊ ጅኦግራፈአዊ ጉዳዮች ዕውቀት፤ አሚላካከት፤ ችግሮችን የሞፍታት ችሎታ፤ እና ችግሮችን ለሞፍታት ያለቸወን ተሳትፎ ለሜጨሞር እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ታምኛለሽ? ከሆን እንዴት? በእኩል ሞከን ካልቀረቡስ ከየትኛውላይየሚያተኩሩ ይሞክልሃል/ይሞክልሻል?

3. በ10ኛ ክፍል የጅኦገራፊ ሞጽሐፍ ላይ በወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮች(CGIs) ስር ሞለትም የህዝብ ብዛት ሜጨሞር፤ የአየር ንብረት ለውጥ፤ ከእቅድ ውጭ የከተሞች ሞስፋፋትና፤ የአካባቢ ብክለት እና የአካባቢ ብክለት የተካተቱ ተግባራት(Instructional Activities) አራቱንም ወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮች(CGIs) የ ሞሞር ዓላማ ሞለትም የተሚዎችን ወቅታዊና አንገብጋቢ ጅኦግራፈአዊ ጉዳዮች ዕውቀት፤ አሚላካከት፤ ችግሮችን የሞፍታት ችሎታ፤ እና ችግሮችን ለሞፍታት ያለቸወን ተሳትፎ እኩል በሆነ መንገድ ለሜጨሞር ቀርበዋል ብለህ ታምናለህ/ሽ? ከሆን እንዴት? በእኩል ሞከን ካልቀረቡስ ከየትኛውላይ የሚያተኩሩ ይሞክልሃል/ሽ ?

4. ከላይ የተጠቀሱትን ወቅታዊና ጅኦግራፈአዊ ጉዳዮች(CGIs) በክፍል ውስጥ ስታስተምር የገጠሞህ/ሽ ዋና ዋና ችግሮች ምን ምን ናቸው? እነዚህ ችግሮች እንዴት ነው ተፅኖ ያሳደሩብህ/ሽ?

Appendix M: GRADE 9 Geography Textbook Evaluation Guideline

GRADE 9 Geography Textbook Evaluation Guideline

Population Growth							
No.	Themes integrated under each CGI	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	attitude	skills	Participation
1	Content items integrated into each CGI						
2	Learning objectives						

	integrated						
3	Instructional activities						
Soil erosion							
1	Content items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitude	Skills	Participations
2	Learning Objectives						
3	Instructional ac-						

	tivities						
		Deforestation					
1	Content Items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitudes	Skills	Participations
2	Learning Objectives						
3	Instructional Ac-						

	tivities						
Land degradation							
1	Content items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitude	Skills	Participation
2							
	Learning Objectives						
3	Instructional Activities						

Environmental pollution							
1	Content items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitude	Skills	Participations
2	Learning Objectives						
3	Instructional activities						

Appendix N: Grade 10 Geography Textbook Evaluation Guideline

GRADE 9 Geography Textbook Evaluation Guideline

Climate change							
No.	Themes integrated under each CGI	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	attitude	skills	Participation
1	Content items integrated into each CGI						
2	Learning objectives integrated						

3	Instruc-tional ac-tivities						
Population growth							
1	Content items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitude	Skills	Participa-tions
2	Learning Objectives						

3	Instructional activities						
		Pollution					
1	Content Items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitudes	Skills	Participations
2	Learning Objectives						

3	Instructional Activities						
Unplanned urbanization							
1	Content items	Lists of content items, learning objectives of CGIs and instructional activities under population growth	The frequency content items appear in the textbook	Are the content items, learning objectives and instructional activities integrated in the textbook presented in the way they enhance students'……			
				Knowledge	Attitude	Skills	Participation
2	Learning Objectives						

3	Instruc-tional Ac-tivities						

Appendix O: Classroom Observation Checklist

The objective of this observation guideline is to assess how Geography teachers integrate Contemporary Geographic Issues (CGIs) such as soil erosion, deforestation, land degradation, population growth and environmental pollution in Grade 9 Geography classes and population growth, pollution, climate change and unplanned urbanization in Grade 10 Geography classrooms. More specifically, this instrument focuses on whether Geography teachers integrate each CGI in a way to enhance students' knowledge, attitudes, problem-solving skills and participations on solving problems related to CGIs. In addition, it focuses on geography teachers' use of appropriate teaching methods to integrate CGIs in the classroom, the sources of information teachers use in the classroom or give to students, and the types of instructional activities teachers employ for each type of CGI.

Observed GGIs		The teacher's ways of integrating the issue	Your observation repo about teachers' integrati ways of integration in CGI
Popu- lation Growth	2	Explaining the nature, causes, consequences and solutions of population growth	
		Make students relate the issue to local realities	
		Make the students examine the causes, consequences and solutions of overpopulation growth.	
		Make students sensitive to the impact of population growth on the environment and human life.	

		Make students concerned about problems related to population growth	
		Make students take their own responsibilities in solving problems related to population growth.	
		Challenge students apply their knowledge to address local CGIs,	
		Engaged students in meaningful problem-solving activities	
		Motivate the learner to continue their learning of population growth beyond school time.	
		Use emotional visuals or powerful statistics that show the rapid increase in population growth and its impact on human beings or the ecosystem.	
		Ask students emotional raising questions used to take responsibility.	
		Present real-life stories related to population growth and its consequences	
		Encourage students to take their own roles in solving problems related to population growth.	
		Provide students with opportunities used to engage in real-life problem-solving activities.	
		Make students propose their own solutions to the problems of CGI	

Observed GGI	Teachers' ways of integrating the issue	Imple-menta-tions
Environmental degradation	Explaining the nature, causes, consequences and solutions of environmental degradation	
	Make students relate the issue to local realities.	
	Make the students examine the causes, consequences and solutions of over environmental degradation.	
	Make students sensitive to the impact of environmental degradation on the environment and human life.	
	Make students concerned about problems related to environmental degradation.	
	Make students take their own responsibilities in solving problems related to environmental degradation.	
	Challenge students apply their knowledge to address local environmental degradation.	
	Engaged students in meaningful problem-solving activities	
	Motivate the learner to continue their learning of environmental degradation beyond school time.	
	Use emotional visuals or powerful statistics that show the rapid increase of environmental degradation and its impact on human beings or the ecosystem.	
	Ask students emotional raising questions used to take responsibilities	

	Present real-life stories related to environmental degradation and its consequences	
	Encourage students to take their own roles in solving problems related to environmental degradation.	
	Provide students with opportunities used to engage in real-life problem-solving activities.	
	Make students propose their own solutions to problems of environmental degradation.	
Additional observation		

Observed GGI	Observation Frequency	Teacher's ways of integrating the issue	Implementations	
			Yes	No
Soil erosion	1	Explaining the nature, causes, consequences and solutions of soil erosion		
		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences and solutions of soil erosion.		
		Make students sensitive to the impact of soil erosion on the environment and human life.		
		Make students concerned about problems related to soil erosion.		
		Make students take their own responsibilities in solving problems related to soil erosion.		
		Challenge students apply their knowledge to address local soil erosion.		
		Engaged students in meaningful problem-solving activi-		

		ties		
		Motivate the learner to continue their learning of soil erosion beyond school time.		
		Use emotional visuals or powerful statistics that show the rapid increase of soil erosion and its impact on human beings or the ecosystem.		
		Ask students emotional raising questions used to take responsibilities of soil erosion.		
		Present real-life stories related to soil erosion and its consequences		
		Encourage students to take their own roles in solving problems related to soil erosion.		
		Provide students with opportunities used to engage in real-life problem-solving activities.		
		Make students propose their own solutions to problems of soil erosion.		
Additional observation				
Observed GGI	Observation Frequency	Teacher's ways of integrating the issue	Implementations	
			Yes	No
Deforestation	1	Explaining the nature, causes, consequences and solutions of deforestation		

		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences and solutions of overdeforestation.		
		Make students sensitive to the impact of deforestation on the environment and human life.		
		Make students concerned about problems related to deforestation.		
		Make students take their own responsibilities in solving problems related to deforestation.		
		Challenge students apply their knowledge to address local deforestation.		
		Engaged students in meaningful problem-solving activities		
		Motivate the learner to continue their learning of deforestation beyond school time.		
		Use emotional visuals or powerful statistics that show the rapid increase of deforestation and its impact on human beings or the ecosystem.		
		Ask students emotional raising questions used to take responsibilities.		
		Present real-life stories related to deforestation and its consequences		
		Encourage students to take their own roles in solving problems related to deforestation.		
		Provide students with opportunities used to engage in real-life problem-solving activities.		
		Make students propose their own solutions to problems of deforestation.		

Additional observation				
Observed GGI	Observation Frequency	Teacher's ways of integrating the issue	Implementations	
			Yes	No
Environmental pollution	1	Explaining the nature, causes, consequences and solutions of deforestation		
		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences and solutions of overdeforestation.		
		Make students sensitive to the impact of deforestation on the environment and human life.		
		Make students concerned about problems related to deforestation.		
		Make students take their own responsibilities in solving problems related to deforestation.		
		Challenge students apply their knowledge to address local deforestation.		
		Engaged students in meaningful problem-solving activities		
		Motivate the learner to continue their learning of deforestation beyond school time.		
		Use emotional visuals or powerful statistics that show		

		the rapid increase of deforestation and its impact on human beings or the ecosystem.		
		Ask students emotional raising questions used to take responsibility.		
		Present real-life stories related to deforestation and its consequences		
		Encourage students to take their own roles in solving problems related to deforestation.		
		Provide students with opportunities used to engage in real-life problem-solving activities.		
		Make students propose their own solutions to the problems of CGI		
Additional observation				
Observed GGI	Observation Frequency	Teacher's ways of integrating the issue		
			Implementations	
			Yes	No
Climate change	1	Explaining the nature, causes, consequences and solutions of climate change		
		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences and solutions of climate change.		
		Make students sensitive to the impact of climate change		

		on the environment and human life.		
		Make students concerned about problems related to climate change.		
		Make students take their own responsibilities in solving problems related to climate change.		
		Challenge students apply their knowledge to address local climate change.		
		Engaged students in meaningful problem-solving activities		
		Motivate the learner to continue their learning of climate change beyond school time.		
		Use emotional visuals or powerful statistics that show the rapid increase of climate change and its impact on human beings or the ecosystem.		
		Ask students emotional raising questions used to take responsibilities of climate change.		
		Present real-life stories related to climate change and its consequences		
		Encourage students to take their own roles in solving problems related to climate change.		
		Provide students with opportunities used to engage in real-life problem-solving activities.		
		Make students propose their own solutions to problems of climate change.		
Additional observation				

Observed GGI	Observation Frequency	Teacher's ways of integrating the issue		
			Imple-menta-tions	
			Ye s	No
Population growth	1	Explaining the nature, causes, consequences and solutions of population growth		
		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences and solutions of overpopulation growth.		
		Make students sensitive to the impact of population growth on the environment and human life.		
		Make students concerned about problems related to population growth.		
		Make students take their own responsibilities in solving problems related to population growth.		
		Challenge students apply their knowledge to address local CGIs,		
		Engaged students in meaningful problem-solving activities		
		Motivate the learner to continue their learning of population growth beyond school time.		
		Use emotional visuals or powerful statistics that show the rapid increase in population growth and its impact on human beings or the ecosystem.		
		Ask students emotional raising questions used to take responsibility.		
		Present real-life stories related to population growth and its consequences		
		Encourage students to take their own roles in solving		

		problems related to population growth.		
		Provide students with opportunities used to engage in real-life problem-solving activities.		
		Make students propose their own solutions to the problems of CGIs		
Additional observation				
Observed GGI	Observation Frequency	Teacher's ways of integrating the issue		
			Implementations	
			Yes	No
Unplanned urbanization	1	Explaining the nature, causes, consequences and solutions of unplanned urbanization		
		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences and solutions of unplanned urbanization.		
		Make students sensitive to the impact of unplanned urbanization on the environment and human life.		
		Make students concerned about problems related to unplanned urbanization.		
		Make students take their own responsibilities in solving problems related to unplanned urbanization.		
		Challenge students apply their knowledge to address local CGIs,		

		Engaged students in meaningful problem-solving activities		
		Motivate the learner to continue their learning of unplanned urbanization beyond school time.		
		Use emotional visuals or powerful statistics that show the rapid increase of unplanned urbanization and its impact on human beings or the ecosystem.		
		Ask students emotional raising questions used to take responsibility.		
		Present real-life stories related to unplanned urbanization and its consequences		
		Encourage students to take their own roles in solving problems related to unplanned urbanization.		
		Provide students with opportunities used to engage in real-life problem-solving activities.		
		Make students propose their own solutions to problems of unplanned urbanization.		
Additional observation				
Observed GGI	Observation Frequency	Teacher's ways of integrating the issue		
			Implementations	
			Yes	No
Coastal pollution	1	Explaining the nature, causes, consequences and solutions of coastal pollution		
		Make students relate the issue to local realities.		
		Make the students examine the causes, consequences		

		and solutions of overcoastal pollution.		
		Make students sensitive to the impact of coastal pollution on the environment and human life.		
		Make students concerned about problems related to coastal pollution.		
		Engaged students in meaningful problem-solving activities		
		Motivate the learner to continue their learning of coastal pollution beyond school time.		
		Use emotional visuals or powerful statistics that show the rapid increase of coastal pollution and its impact on human beings or the ecosystem.		
		Present real-life stories related to coastal pollution and its consequences		
		Make students propose their own solutions to the problems of CGIs		
Additiona observation				

Appendix P: A Wilcokson Signed Rank Test of Pairwise Comparison Test Result for Teachers' Use of a Variety of Teaching Methods

No.	Teaching Methods	Z	Sig.	No.	Teaching Methods	Z	Sig.
1	Lecture method - Group discussion	-5.693[c]	.000	47	Concept maps -Experiential Learning	.096[c]	.823
2	Lecture Method-Brainstorming	5. 719[b]	.000	48	Concept maps-Problem-based learning	-1.870[c]	.070
3	Lecture method-Demonstration	-7.095[b]	.000	49	Concept maps-Use of Realia	-2.287[c]	.022
4	Lecture Method-Concept Maps	-6.690[b]	.000	50	Concept maps -Reflection	-3.232[c]	.001
5	Lecture method-Experiential Learning	-6.585[b]	.000	51	Concept maps-Role Plays	-.221[c]	.825
6	Lecture Method-Problem-based learning	-7.249[b]	.000	52	Concept maps-Community Engagement	-3.683[c]	.000
7	Lecture method-Use of Realia	-7.702[b]	.000	53	Concept maps -Field Trips	-3.831[c]	.000
8	Lecture Method-Reflection	-7.213[c]	.000	54	Concept maps-Simulations	-3.715[c]	.000
9	Lecture method-Role Plays	-6.611[b]	.000	55	Concept maps-Case studies	4.777[c]	.000
10	Lecture Method-Community Engagement	-7.309[b]	.000	56	Experiential learning-Problem-based learning	-1.620[c]	.105
11	Lecture method-Field Trips	-7.171[b]	.000	57	Experiential learning-Use of Realia	-2.726[c]	.006
12	Lecture Method- Simulations	-7.022b	.000	58	Experiential learning - Reflection	-2.603[c]	.009
13	Lecture method-Case studies	7.106[b]	.000	59	Experiential learning-Role Plays	-0.76c	.939
14	Group discussion-Brainstorming	-.723[b]	.470	60	Experiential learning-Community Engagement	-3.009[c]	.003
15	Group discussion-Demonstration	-4.977[b]	.000	61	Experiential learning-Field	3.055[c]	.002
16	Group discussion-Concept Maps	-3.870[b]	.000	62	Experiential learning-Simulations	-3.620c	.000
17	Group discussion-Experiential Learning	-2.758[b]	.006	63	Experiential learning-Case studies	-4.457c	.000

18	Group discussion-Problem-based learning	-4.935[b]	.000	64	Problem-based learning-Use of Realia	1.621[c]	.105
19	Group discussion-Use of Realia	-5.368[b]	.000	65	Problem-based learning-Reflection	-2.280[c]	.23
20	Group discussion-Reflection	-5.963[b]	.000	66	Problem-based learning-Role Plays	-1.732[c]	,083
21	Group discussion- Role Plays	-2.983[b]	.003	67	Problem-based learning-Community Engagement	-3.129[c]	.002
22	Group discussion-Community Engagement	-5.688[b]	.000	68	Problem-based learning-Field Trips	-2.270[c]	.023
23	Group discussion-Field Trips	-6.244[b]	.000	69	Problem-based learning-Simulations	-2.148[b]	.016
24	Group discussion-Simulations	-5.683[b]	.000	70	Problem-based learning-Case studies	-4.810[b]	.000
25	Group discussion-Case studies	-6.635[b]	.000	71	Use of relia-Reflection	-.173[c]	.863
26	Brainstorming-Demonstration	-4.373[b]	.000	72	Use of relia -Role Plays	-2.523[c]	.012
27	Brainstorming-Concept Maps	-2.777[b]	.005	73	Use of relia-Community Engagement	-1.192[c]	2.233
28	Brainstorming-Experiential Learning	-2,018[b]	.044	74	Use of Relia -Field Trips	-.891[c]	.373
29	Brainstorming-Problem-based learning	-4.297[b]	.000	75	Use of relia-Simulations	-1.073[c]	.283
30	Brainstorming-Use of Realia	-4.6 [b] 99[b]	.000	76	Use of relia -Case studies	-3.694[b]	.000
31	Brainstorming-Reflection	-1.570[b]	.000	77	Reflection-Role Plays	-2.835[c]	.005
32	Brainstorming-Role Plays	1.999c	.046 [c]	78	Reflection-Community Engagement	-1.165[b]	.244
33	Brainstorming-Community Engagement	-5.333[c]	.000	79	Reflection-Field Trips	-.812[c]	.417
34	Brainstorming-Field Trips	-5.488[c]	.000	80	Reflection-Simulations	-1.133[b]	.257
35	Brainstorming-Simulations	-4.468[c]	.000	81	Reflection-Case studies	-3.503[b]	.000
36	Brainstorming-Case studies	-4.475[b]	.000	82	RolePlays-Community Eng.	-3.173[c]	.002
37	Demonstration -Concept Maps	-2.451[b]	.014	83	Role Plays-Field Trips	-3.723[b]	.000
38	Demonstration-Experiential Learning	-2280[c]	.230	84	Role plays-Simulations	-1.073[c]	.283
39	Demonstration-Problem-based learning [b]	-1.556[c]	.120	85	Role plays-Case studies	-4.739[b]	.000
40	Demonstration -Use of Realia	-. 251[c]	.803	86	Community eng.-Field Trips	-.374[c]	.709
41	Demonstration-Reflection	.066[b]	.948	87	Community engagement-Simulations	-.290[c]	.772
42	Demonstration-Role Plays	2.766[b]	.006	88	Community Eng.Casestudies	-2.759[b]	.006
43	Demonstration -Community En-	-.854[b]	.393	89	Field Trips-Simulations	.088[b]	.930

	gagement						
44	Demonstration-Field Trips	-.430[b]	.766	90	Field Trips-Case studies	-3.212[b]	-001
45	Demonstration-Simulations	.881[b]	.338	91	Simulations-Case study	-2.454[b]	-014
46	Demonstration-Case studies	-3.235[b]	.001				

Keys: b = based on negative ranks, c = based on positive ranks, d = the sum of positive ranks is equal to the sum of negative ranks

Appendix Q: A Wilcokson Signed Rank Test Pairwise Comparison Test Results for Teachers' Use of a Variety of Sources of Information in Integrating CGIs in Classroom Practices

No.	Sources of information	Z	Sig.	No.	Sources of Information	Z	Sig.(2-tailed)
1	Textbook-Radio	-7.371[b]	.000	61	Outdoor Act.- Social media	-. 437[c]	.662
2	Textbook-Articles	7.292[b]	.000	62	Outdoor Act.- Field work	-5.067[c]	.000
3	Textbook-Television	6.280[b]	.000	63	Outdoor Act.- GIS	6798[c]	.000
4	Textbook -Newspaper	7.208[b]	.000	64	Outdoor Act.- Magazine	-4.600[b]	.000
[b] 5	Textbook-Local areas	7.205[b]	.000	65	Outdoor Act.- Training	-.169[b]	.866
6	Textbook [c] -Magazine	7.290[b]	.000	66	Outdoor Act.- Recorded materials	.998[c]	.318
7	Textbook -Maps	-7.220[b]	.000	67	Training - Radio	-5.060[b]	.000
8	Textbook-Social media	-6.872[b]	.000	68	Training- Articles	-4.171[b]	.000
9	Textbook -Outdoor activities	-7.191[b]	.000	69	Training- Newspaper	-4.097[b]	.000
10	Textbook-Training	-7.048[b]	.000	70	Training - Local areas	-4.997[b]	.000
11	Textbook-Recorded materials	-7.108[b]	.000	71	Training - Magazine	-4.638[b]	.000
12	Textbook-Internet	-7.074[b]	.000	72	Training - Social media	.270[c]	.787
13	Textbook -Envt.Org.	-6.430[b]	.000	73	Training - Internet	-1.846[c]	.065
14	Textbook-Field work	-7.239[b]	.000	74	Training - Field work	-4.725[c]	.000
15	Textbook -GIS	-7.451[c]	.000	75	Training - GIS	-6423[c]	.000
16	Television-Radio	6.556[b]	.000	76	Training - Recorded materials	-1.100[c]	.271
17	Television-Articles	-5.547[b b]	.000	77	Social media - Radio	-4.625[b]	.000
18	Television-Magazine	-6.242[b]	.000	78	Social media - Newspaper	-3.763[b]	.000
19	Television-Newspaper	-5.410[c]	.000	79	Social media - Local areas	-4.625[b]	.000
20	Television-Local areas	-6.422[c]	.000	80	Social media - Magazine	-4.239[b]	.000
21	Television -Maps	-3.579[c]	.000	81	Social media - Internet	-1.653[c]	.098
22	Television-Social media	-2.838[c]	.001	82	Social media - Field work	-4.739[b]	.000
23	Television-Training	-3.435[c]	.005	83	Social media - GIS	-5.924[c]	.000
24	Television-Recorded materials	-3.837[c]	.000	84	Social media - Articles	-3.974[c]	.000
25	Television-The internet	-4.583[c]	.000	85	Social media - Field work	-4.739[b]	.000

26	Television-Envt.Org.	-1.081[c]	.280	86	Recorded materials- Radio	-4.702[b]	.000
27	Television -Field work	-6.105[c]	.000	87	Recorded materials - Newspaper	-3.429[b]	.001
28	Television-GIS	7.021[c]	.000	88	Recorded materials - Articles	-3.573[b]	.000
29	Television-Outdoor Act.	-3.803[c]	.000	89	Recorded materials- Magazine	-3.728[b]	.000
30	Envt.Org. - Articles	-5.528[b]	.000	90	Recorded materials- Social media	-1. 121[c]	.262
31	Envt. Org.-Newspaper	-5.058[b]	.000	91	Recorded materials - Internet	-1.653[c]	.098
32	Envt.Org.-Local areas	-5.615[b]	.000	92	Recorded materials- Field work	4.502[c]	.000
[c]33	Envt.Org. -magazine	-5.692[b]	.000	93	Recorded materials - GIS	-5.990[c]	.000
34	Envt. Org.-Maps	-2.236[b]	.025	94	Internet - Radio	-4.330[b]	.000
35	Envt.Org.-Media	-1.741[b]	.082	95	Internet - Articles	-3.134	.002
36 [b]	Envt.Org. -Outdoor activities	2469[b]	.008	96	Internet -Newspaper	3.028[b]	.002
37	Envt. Org.-Training	-2.373[b]	.018	97	Internet - Local areas	-3.928[b]	.000
38	Envt.Org.-Recorded materials	-3.013[b]	.003	98	Internet - Magazine	-3.536[b]	.000
39	Envt.Org.-Internet	-3.675[b]	.000	99	Internet - GIS	-5.555[b]	.000
40	Envt. Org.-Field work	-5.555[c]	.000	100	Internet - Field work	-4.292[c]	.000
41	Envt.Org.-GIS	-6.440[b]	.000	101	Newspaper - Radio	-.744[b]	.547
42	Envt.Org.-Radio	-5.832[b]	.000	102	Newspaper - Article	-.171[b]	.864
43	Maps -Radio	-5.073[b]	.000	103	Newspaper - Local areas	-1.220[c]	.222c
44	Maps-Articles	-4.354[b]	.000	104	Newspaper -Magazine	-.483[c]	.629
45	Maps-Newspaper	-4.137[b]	.000	105	Newspaper - Field work	-1.795[c]	.073
46	Maps-Local areas	-5.059 [b]	.000	106	Newspaper - GIS	-2.896[c]	.064
47	Maps-Magazine	-4.700[b]	.000	107	Article - radio	-.593[b]	553
48	Maps -Training	.000[d]	1.000	108	Article - Field work	-.1487[c]	.137
49	Maps-Recorded materials	-1054[c]	.292	109	Article - GIS	-2.818[c]	.005
50	Maps-Internet	-1.497[c]	.134	110	Article - Local area	-.914[c]	.361
51	Maps-Fieldwork	-4.816[c]	.000	111	Article - Magazine	-281[c]	.778
52	Maps-GIS	-6.514[c]	.000	112	Magazine - Radio	-.220[c]	.826
53	Maps-Social media	-.308[b]	.758	113	Magazine - Local areas	-.664[b]	.507
54	Maps - Outdoor Acts.	-.186[c]	.853	114	Magazine - GIS	-2.550[c]	.011
55	Outdoor Act.- Radio	-5.842[b]	.000	115	Magazine - Field work	-1.213[c]	.225
56	Outdoor Act.- Articles	-4.714[b]	.000	116	Local areas – Field work	-795[c]	.426
57	Outdoor Act.- Newspaper	-4.147[b]	.000	117	Local areas - GIS	-2.045[c]	.041
58	Outdoor Act.- Local areas	-4.998[b]	.000	118	Local areas - Radio	-.419[c]	.675
59	Outdoor Act.- Magazines	-4.600[b]	.000	119	Radio - GIS	2.949[c]	.003
60	Outdoor Act.- Internet	-1639[c]	.101	120	Radio - Field work	-1.276[c]	.202

Keys: b = based on negative ranks, c = based on positive ranks, d = the sum of positive ranks is equal to the sum of negative ranks

Appendix R: Grade 9 Students' Annotated Responses in In-depth Interview

ጥያቄ1፡- 9ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ በወቅታዊ ጅኦግራፊያዊ ጉዳዮችን(Contemporary Geographic Issues) ስር ማለትም የአፈር መሸርሸር፤ የመሬት መራቆት፤ የደን መጨፍጨፍ፤የህዝብ ብዛት መጨመር፤ እና የአካባቢ ብክለት ስር የተካተቱ ይዘቶች ለምሳሌ የአፈር መሸርሸር ምክንያቶች፤ ተጽኖዎች፤ መፍተሄዎች ወዘተ የተማሪዎችን ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ክህሎት/ችሎታ፤እና ችግሮችን ለመፍታት ያላቸውን ተሳትፎ እኩል በሆነ መንገድ ጨምረውልኛል ብለህ ታምናለህ/ታምኛለሽ? ከጨመሩ እንዴት? በእኩል መጠን ካልጨመሩስ ከየትኛው ላይ የሚያተኩሩ የሚመስልህ/ሽ?

ተማሪ 1፡- አዎ መጽሐፉን በጥልቀት አንብቤዋለሁ፡፡ እንደ እኔ ከሆነ ጥሩ እውቀት አግኝቻለሁ ብዬ አስባለሁ፡፡በቂ የአመለካከት ለውጥና ክሎት ግን አግንቸበታለሁ ብዬ አላስብም፡፡ ስለዚህ የአካባቢ ችግሮችን በቀላሉ ለመከላከል እቸገራለሁ፡፡

ተማሪ 2፡- ወቅታዊና አንገብጋቢ አካባቢያዊ የሆኑ ጉዳዮች በ9ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ በጥልቀት ተቀምጠል፡፡ ስለዚህ እኔ በቂ የሆነ እውቀት፣ አመለካከት እና ክህሎት አግንቻለሁ ብዬ አስባለሁ፡፡አካባቢያን መንከባከብ እችላለሁ ብዬ አስባለሁ፡፡

ተማሪ 3፡- በወቅታዊና አንገብጋቢ ጂኦግራፊያዊ ጉዳዮች ላይ ለምሳሌ የአፈር መሸርሸር፣ የህዝብ ቁጥር መጨመር እና የደን መጨፍጨፍ በቂ እውቀት ያገኘሁ ቢመስለኝም ክህሎትና አመለካከትን ግን በደንብ አላዳበርሁም፡፡ ስለዚህ አካባቢዬን ከተለያዩ ችግሮች ለመጠበቅ እቸገራለሁ፡፡

ተማሪ 4 በ9ኛ ክፍል የጅኦግራፊ መፅሐፍ ላይ የተቀመጡት ይዘቶች በጥልቀትና ግልፅ በሆነ መልኩ ተቀምጠዋል። እኔም በቂ እዉቀት፤ ክህሎትና ዓመለካከት አምጥቻለሁ ብዬ አስባለሁ።

ተማሪ 5፡- የ9ኛ ክፍል የጂኦግሪፊ መጽሐፍ በወቅታዊ ጂኦግራፊያዊ ጉዳዮች ላይ ዕውቀትና ክህሎትን በሚያዳብር መልኩ ይዘቶች አልተቀመጡም። ጂኦግራፊያዊ ጉዳዮችም የአለምንም ሆነ የአካባቢያችንን ችግር በሚፈቱ መልክ አልተቀመጡም።

ተማሪ 6፡- በ9ኛ ክፍል የጂኦግራፊ መጽሐፍ ላይ የተቀመጡት ጉዳዮችን በቀላሉ መረዳት እችላለሁ። ምክንያቱም ከታች ክፍል ብዙ ጊዜ ተምሬያቸዋለሁ፤ በተለያዩ ሚዲያዎችም ለምሳሌ፡- በቲቪ እናያቸዋለን። ባለሙያዎችም በቀበሌያችን ስለመንስኤዎች፣ ጉዳታቸውና መፍትሔዎቻቸው ያስተምሩናል። ስለዚህ እነዚህን ጉዳዮች ሳነብ ቶሎ ይገባኛል። ልምምድ ስለማላደርግ ግን በቂ ክህሎትና የአመለካከት ለውጥ ማምጣት አልቻልሁም።

ጥያቄ 2፡-በ9ኛ ክፍል የጅኦገራፊ መጽሐፍ ላይ በወቅታዊ ጅኦግራፊአዊ ጉዳዮች(CGIs) ስር ማለትም በአፈር መሸርሸር፤ የመሬት መራቆት፤ የደን መጨፍጨፍ፤የህዝብ ብዛት መጨመር፤ እና የአካባቢ ብክለት ስር ያሉ ተግባራት(Instractional Activities) አራቱንም የወቅታዊ ጅኦግራፊአዊ ጉዳዮች የመማር ዓላማ ማለትም የተማሪዎችን ወቅታዊ ጅኦግራፊአዊ ጉዳዮች(CGIs) ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ክህሎት፤እና ችግሮችን ለመፍታት ያለቸወን ተሳትፎ እኩል በሆነ መንገድ ለመጨመር እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ሽ ከሆን እንዴት በእኩል መጠን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ሽ

ተማሪ 1፡- የቀረቡት አክቲቪቲዎች በቂ ናቸው ብዬ አላምንም። በብዛት ዕውቀትን ነው መሰረት ያደረጉት።

ተማሪ 2፡- በእኔ ዕይታ በወቅታዊ ጉዳዮች ላይ የተጠቀሱት ተግባራት በጥሩ ሁኔታ የቀረቡ ናቸው። ምን እንደተማርንና ምን አይነት ክህሎት እንደምናዳብር ይረዱናል።

ተማሪ 3፡- እኔ Geography ስማር ብዙ ተግባራትን ሰርቻለሁ። በመጽሐፉ መሠረት ለማለት ነው። እንደማስታውሰው ግን አብዛኛዎቹ ተግባራት የተማርነውን አንድናስታውስ ነው የሚያደርጉን። አመለካከታችንና ክህሎታችንን እንድናዳብር የሚየደርጉን ተግባራት ግን

ጥቂቶቹ ናቸው። ስለዚህ አብዘኛዎች ተግባራት ችግሮችን እንድንፈታ የሚያደርጉን አይደሉም።

ተማሪ 4፡- እንደማስታውሰው አብዛኛዎቹ ተግባራት የተማርነውን እንድናስታውስ ወይም የምንማረውን እንድንገምት የሚያደርጉን ናቸው። ትኩረት የሚያደርጉም ስለእያንዳንዱ ጉዳይ ምንነት፣ መንስኤ፣ ተፅዕኖና መፍትሄው ነው የሚያተኩሩት።

ተማሪ 5፡- የ9ኛ ክፍል የጂኦግራፊ መጽሐፍ ላይ ያሉ ተግባራት የማሪዎችን ዕውቀት፣ ክህሎትና አመለካከት እንዲያዳብሩ ሆነው ነው የቀረቡት። ነገር ግን አብዛኛው ተግባራት ዕውቀት ላይ ያተኩራሉ።

ተማሪ 6፡- ዕውቀቱን ሊያዳብሩ የሚችሉ የተለያዩ ተግባራት መጽሐፉ ውስጥ ተካተዋል። በተለይም ስለ እያንዳንዱ Geographic issues መንስኤ፣ ትርጉም፣ የሚያደርሱት ተፅዕኖና መፍትሄዎች ላይ ትኩረት አድርገው ያወራሉ

ጥያቄ3፡- የአንተ/የአንች የጅኦግራፊ መመህር ስለ ወቀታዊ ጅኦግራፊያዊ ጉዳዮች ሲያስተምር፣ የትኞቹ ላይ ነው አንተ/አንች መሻሻል ያሳየኸው? ስለ ወቅታዊ ጅኦግራፊያዊ እዉቀት፤ አመለካከት፤ ክህሎት ወይስ ተሳትፎ ላይ

3.1 እውቀት ላይ ያለህ/ሽ መሻሻልን በተመለከተ ምን ትላለህ/ሽ?

ተማሪ 1፡- እነደ እኔ እምነት በተማርናቸው ወቅታዊና አንገብጋቢ በሆኑ ጉዳዮች ላይ መምህሩ ክፍል ውስጥ ሲያስተምር ዕውቀቱ ከጊዜ ወደ ጊዜ ጨምሯል ብዬ አምናለሁ። ለምሳሌ የአፈር መሸርሸር ምን ማለት እንደሆነ አውቂያለሁ። የአፈር መሸርሸር ማለት የአፈር ለም የሆነው ክፍል በተለያዩ ነገሮች ታጥቦ ወደተለያየ ቦታ መዬድ ማለት ነው። ለምሳሌ በሰው እና በጉርፍ ሊሸረሸር ይችላል። አፈር ከተሸረሸረ ህይወት የለም። ስለዚህ መከላከል አለብን። አፈርን እንዴት መከላከል እንደሚቻልም ጠንቅቄ አውቃለሁ፡ ፡ ለምሳሌ ዛፍ በመትከል፣ አግድም በማረስ እና እርከን በመስራት መከላከል ይቻላል። የህዝብ ብዛት መጨመር ምን ማለት እንደሆነም አውቃለሁ። ምክንያቱን፣ ተፅኖውን እና መፍትሔውንም ጨምሮ።

ተማሪ 2፡- መምህሩ ክፍል ውስጥ ሲያስተምር ዕውቀታች በደንብ እንድናዳብር አድርጎናል።

ተማሪ 3፡- ዘጠነኛ ክፍል ከተማርሁ በኋላ ስለ እያንዳንዱ አንገብጋቢና ወቅታዊ ጉዳይ ከነ መንስኤው፣ ችግሩና መፍትሄከ ማወቅ ችያለሁ፡፡

ተማሪ 4፡- ስለወቅታዊና አንገብጋቢያዊ ጉዳዮች አውቃለሁ ብዬ አስባለሁ፡፡ ለምሳሌ የመሬት መራቆት ምን ማለት እንደሆነ አውቃለሁ፡፡ የደን መጨፍጨፍ ምክኒያቶቹን ብትጠይቀኝ ዋናዎቹ ምክንያቶች ለእርሻና ለከሰል ተብሎ በሰዎች መጨፍጨፍ ነው፡፡ አፈርም በተለያዩ መልኩ ይሸረሸራል፡፡ ለምሳለ በነፋስ፣ በጐርፍ፣ ያለ አግባብ መታረስ፡፡

ተማሪ 5፡- እኔ ስለአፈር መሸርሸር፣ ስለ ህዝብ ብዛት መጨመር፣ በደንብ አውቃለሁ፡፡ ከዚህ በፊትም ቢሆን ተምሪያቸዋለሁ፡፡ ለዚህም ነው ዕውቀቴ የጨመረው፡፡ ከዚህ በጨማሪም መመህሩ በሚሰጠኝ አቅጣጫ አነባለሁ፡፡ በተለይም ስለ መንስኤዎች፣ ችግሮች፣ ተፅኖዎች እንዲሁም ስለ መፍትሄዎች፡፡ ስለነዚህ ነገሮች ደጋግሜ ስለተማርሁ የምረሳቸው አይመስለኝም፡፡ እንዲያውም በአካባቢየ ያለውን የአካባቢ ችግር ሳይ የተማርሁት ትዝ ይለኛል፡፡

ተማሪ 6፡- በወቅታዊና አንገብጋቢ ጅኦግራፊያዊ ጉዳዮች ላይ መምህሩ በቂ እውቀት አስጨብጦኛል ብየ አምናለሁ፡፡

3.2 እስኪ ክህሎት ላይ ያለህ/ሽ መሸሻልን በተመለከተ ምን ትላለህ/ሽ

ተማሪ 1፡- ወቅታዊ ጅኦግራፊያዊ ጉዳዮችን ለመፍታት የሚያስችል ክህሎት አዳብሪያለሁ ብዬ አላስብም፡፡ በእርግጥ መፍትሄዎችን አውቃቸዋለሁ፡፡ በተግባር ማሳየት ግን አልችልም፡፡ ይህ የሆነበት ምክንያት ደግሞ ስለእነዚህ ጉዳዮች ስማር ለምሳሌ ስለመንስኤዎችና መፍትሔዎች በተግባር አላየሁም፡፡

ተማሪ 2፡- መምህሩ ሲያስተምረኝ አካባቢያዊ ችግሮችን ለመፍታት የሚጠቅሙ ክህሎቶችን አዳብሪያለሁ ብየ አስባለሁ፡፡ ነገር ግን ያዳበርኩትን ክህሎት እምተገብርበት ቦታ የለም፡፡ ለምሳሌ የአፈር መሸርሸር የአካባቢያችን ዋናኛ ችግር ነው፡፡ ይህን ችግር ለመፍታት አቅሙ አለኝ፡፡ ለምሳሌ ዛፍ መትከል እና እርከን መስራት እችላለሁ ችግርም ፍታ ከተባልሁ መፍታት እችላለሁ፡፡ ህዝቡን አንቀሳቅሸም ማሰራት እችላለሁ ግን ይህ አጋጣሚ የለም፡፡

ተማሪ 3፡- ወቅታዊና አካባቢያዊ የሆኑ ችግሮችን ለመፍታት የሚያስችል አቅም አጐልብቻለሁ ብየ አላስብም፡፡ በእርግጥ በ theory ደረጃ አውቃቸዋለሁ፡፡ በተግባር ግን የምችል አይመስለኝም ለምሳሌ አንድ አካባቢ በምን ያህል መጠን እንደተበከለ ማወቅ አልችልም

ተማሪ 4፡- ክህሎቴን አዳብሪያለሁ ለማለት አልችልም

ተማሪ 5፡- ብዙም ክህሎት አላዳበርኩም

ተማሪ 5፡- የተወሰነ ክህሎት አዳብሪያለሁ ብዬ አስባለሁ፡፡ ለምሳሌ የአፈር መሸርሸርን እንዴት እንከላከላለን ብለህ ብትጠይቀኝ, ዕርከን መስራት፣ እላለሁ፡፡ እርከንም እንዴት እንደሚሰራም አውቃለሁ፡፡

ተማሪ 6፡- ምንም እንኳን በቂ የሆነ ክህሎት አዳብሪያለሁ ባልልም, 9ኛ ክፍል ወቅታዊና አንገብጋቢ የሆኑ ነገሮችን ስማራቸው ግን በተቻለ መጠን የወቅታዊና አንገብጋቢ ጉዳዮችን ለመፍታት የሚያስችል አቅም አለኝ ብዬ አምናለሁ፡፡ ለምሳሌ በእያንዳንዱ አካባቢ የትኛው ችግር ነው የበዛው ብትሉኝ መረጃ ሰብስቤ እመጣለሁ፡፡ መንስኤውንና መፍትሔውንም ጨምሮ፡፡ ሰዎችን የማስተባበር ችሎታም አዳብሪያለሁ፡፡ ስለዚህ አስተባብሬ ማሰራት እችላለሁ፡፡ ይህን ያልኩበት ምክንያት ደግሞ የአካባቢ ችግሮችን ለመከላከል መተባበር ያስፈልጋል፣ ለምሳሌ የደኖችን መጨፍጨፍ በዚህ መንገድ መከላከል ይቻላል፡፡ ህዝቡን ማስተማርም ይቻላል፡፡ የአፈር መሸርሸርን እርከን በመስራት አከላከላለሁ፡፡ እርከንም እንዴት እንደሚሰራ በደንብ አውቃለሁ፡፡

2.2 አመለካከትን በተመለከተስ ያሸሻልኸው/ያሸሻልሸው ነገር አለ?

ተማሪ 1፡- ወቅታዊና አንገብጋቢያዊ ችግሮችን በመማሬ ስለአካባቢየ መጐዳት ንቁ ሆኘ እንድከታተል አድርጐኛል፡፡ አካባቢን ከመንከባከብ አኩዋያም ጥሩ አመለካከት አዳብሪያለሁ ብዬ አስባለሁ፡፡ ስለዚህ ባለኝ አቅም መከላከል እችላለሁ፡፡ ስለ አካባቢ መጐዳት ሳነብም ሆነ ሳይ ስሜቴ ከፍ ይላል፡፡

ተማሪ 2፡- መምህሩ ወቅታዊና አንገብጋቢያዊ ችግሮችን ሲያቀርብ ከአካባቢው ተጨባጭ ሁኔታ ጋር አያይዞ ሲያቀርብልኝም በጣም ተሳትፎዬ ይጨምራል፡፡ ይህ ደግሞ የበለጠ ችግሩን እንድረዳ አድርጎኛል፡፡ በዚህ ምክኒያቱም የተለያዩ ዘዴዎችን በመጠቀም አካባቢያዊ የሆኑ ችግሮችን አነባለሁ፡፡ አያለሁ ይህ ደግሞ ስሜቴን ያነቃቁታል፡፡

ስለአካባቢዬ ያለኝን አመለካክትም ተቀይሩዋል።ስለዚህ አካባቢየን ለመንከባከብ ዝግጁ ነኝ፡

ተማሪ 3፡- ስለእነዚህ ጉዳዮች ከተማርዐ በኋላ በተለይ ህዝቡ ደን ሲጨፈጭፍ በጣም እናደዳለሁ።። በጣም የተሸረሸሩ ከፍተኛ ቦታዎችን ሳይም ስሜታዊ እሆናለሁ።። በተቃራኒው ደግሞ ጥቅጥቅ ያለ ደን ወይም ጫካ ሳይ በተለይ You Tube በመጠቀም ደስ ይለኛል።። ስሜቴ ይነቃቃል አንደኛ ደረጃ እያለሁ የአካባቢ ክበብ አባል ነበርኩ።። የክበቡ አስተባባሪም አካባቢያችን በአሁኑ ወቅት ችግር ላይ እንዳለ ያስረዳን ነበር።። መፍትሔፍ እንድናቀርብ ያበረታታን ነበር።።

ተማሪ 4፡- ስለ Contemporary geographic issue 9ኛ ክፍል መምህሩ በተወሰኑ ኢሹዎች ላይ ተለይም ስለ ደን መጨፍጨፍ፣ የአካባቢ መራቆት የህዝብ ዕድገት መጨመር በክርክር ሲያስተምረኝ በጉዳዮች ላይ በጣም ንቁ ሆኘ እከታተል ነበር በጣም ስሜት ከፍ ያለ ነበር።። አመለካክቴም ከፍ ብሎ ነበር።። ይህ ደግሞ የሆነው መምህሩ በተለይም የተለያዩ ወቅታዊ ጉዳዮችን ለምሳሌ የአፈር መሸርሸር፡ የደን መጨፍጨፍ ከአካባቢው ተጨባጭ ሁኔታ ጋር አያይዞ ሲያቀርብ የተፈጥሮ ሁኔታን አደንቀ ነበር።።

ተማሪ 5፡- ስለ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች መጀመሪያ ስማር ለምሳሌ የተሸረሸረ ቦታ ሳይ በጣም ስሜታዊ እሆናለሁ ከመጽሐፉ ያሉትን ስዕሎች፣ ስለ አፈር መሸርሸር ስማር ወደ አካባቢዬ አገናኛቸዋለሁ።። ሳይም እንደዚሁ።። አሁን ግን ስሜቴ እንደበፊቱ አይደለም።።

ተማሪ 6፡- ስለወቅታዊ ጉዳዮች ስማር በጣም እመሰጣለሁ።። አመለካክቴም በተዎሰነ ደረጃ ጨምሮ ነበር።። ግን አሁን የቀነሰ ይመስለኛል።።

3.3 ችግሮችን ለመፍታት ካለህ/ሽ ተነሳሽነት አኩዋያስ ያሸሻልኸው/ያሸሻልሽው ነገር አለ?

ተማሪ 1፡- ስለእያንዳንዱ ወቅታዊ ጉዳይ መማር ከጀመርሁ ጀምሮ የወቅታዊ ጅኦግራፊያዊ ጉዳዮችን ችግር ለመፍታት ተነሳሽነቱ አለኝ።። አሁንም ማለት ነው።።

ተማሪ 2፡- መጀመሪያ ስለእያንዳንዱ ወቅታዊ ጉዳይ ስማር ችግሮችን ለመፍታት ተነሳስቸ ነበር።። አሁን ግን ያ ስሜት ብዙም የለም።።

ተማሪ 3፡- መጀመሪያ ነበረኝ አሁን ግን ቀንስዋል።።

ተማሪ 4፡- ለመስራት ፍላጎቱ ቢኖረኝም፡፡ የሚያሳትፉ አጋጣሚዎች ብዙም የሉም፡፡

ተማሪ 5፡- ፍላጎቱ አሁንም አለ፡፡

ተማሪ 6፡-መጀመሪያ ላይ ነው ፍላጎቱ የነበረኝ፡፡ አሁን ግን ቀንስዋል፡፡

Appendix R: Grade 9 Geography Teachers' Annotated Responses in In-depth Interview

ጥያቄ 1፡- በ9ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ የተካተቱ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች(Contemporary Geographic Issues)ማለትም የአፈር መሸርሸር፤ የመሬት መራቆት፤ የደን መጨፍጨፍ፤የህዝብ ብዛት መጨመር፤ እና የአካባቢ ብክለት አለም አቀፋዊ ወይም አገራዊ ችግሮችን ያካተቱ ናቸው ብለህ/ብለሽ ታምናለህ/ታምኛለሽ? በእነዚህ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች ስር የተካተቱ ይዘቶች ለምሳሌ የአፈር መሸርሸር ምክንያቶች፤ ተጽኖዎች፤ መፍተሄዎች ወዘተ የተማሪዎችን ዕውቀት፤ አመለካከት፤ ችግሮችን የመፍታት ክህሎት/ችሎታ፤እና ችግሮችን ለመፍታት ያላቸውን ተሳትፎ እኩል በሆነ መንገድ ጨምረዋል ብለህ ታምናለህ/ታምኛለሽ? ከጨመሩ እንዴት? በእኩል መጠን ካልጨመሩስ ከየትኛው ላይ የሚያተኩሩ የሚመስልህ/ሽ?

መምህር 1፡- የ9ኛ ክፍል የጅኦግራፊ መፅሐፍ ወቅታዊ ጅኦግራፊያዊ ጉዳዮችን ያካተቱ ይመስለኛል፡፡ ለምሳሌ የህዝብ ዕድገት መጨመር፣ የመሬት መራቆት: የአፈር መሸርሸር እና ሌሎችም፡፡ ስለዚህ ተማሪዎችን የተሻላ ዕውቀት፣ ክህሎትና አመለካከት በተጠቀሱት ጉዳዮች ላይ ያገኛሉ፡፡

መምህር 2፡- መጽሐፉ የተለያዩ ጂኦግራፊያዊ አንገብጋቢ የሆኑ ጉዳዮችን አካቷል ብየ አላስብም፡፡ ስለዚህ የተማሪዎች አካባቢያቸውን ለመጠበቅ የሚያበቁ ክህሎትን አላስገነዘበም፡፡

መምህር 3፡- እንደ እኔ እይታ የ9ኛ ክፍል የጂኦግራፊ መጽሐፍ ወቅታዊና አንገብጋቢ የሆኑ ጂኦግራፊያዊ ጉዳዮችን አካቷል፡፡ እነዚህም የአለምን ትኩረት የሳቡ ይመስለኛል፡፡ ስለዚህ መጽሐፉ የተማሪዎችን እውቀት፣ ክህሎትና አመለካከት ያዳብራል ብየ አስባለሁ፡፡

መምህር 4፡- መጽሐፉ ወቅታዊና አንገብጋቢ የሆኑ ጉዳዮችን አካቷል።

መምህር 5፡- መጽሐፉ የተለያዩ ወቅታዊና አንገብጋቢ ጅኦግራፊያዊ ጉዳዮችን ቢይዝም እውቀት ላይ ነው የሚያተኩረው።

መምህር 6፡- መጽሐፉ የተማሪዎችን እውቀት ሊያሳድጉ የሚችሉ ወቅታዊና አንገብጋቢ የሆኑ ጉዳዮችን አካቷል። ነገር ግን ክህሎትን በሚያዳብር መልክ አልቀረቡም።

ጥያቄ 2፡- በ9ኛ ክፍል የጅኦገራፊ መጽሐፍ ላይ በወቅታዊ ጅኦግራፊአዊ ጉዳዮች(CGIs) ስር ማለትም በአፈር መሸርሸር፤ የመሬት መራቆት፤ የደን መጨፍጨፍ፤የህዝብ ብዛት መጨመር፤ እና የአካባቢ ብክለት ያሉ የትምህርት ዓላማዎች(Instructional objectives) አራቱንም ወቅታዊ ጅኦግራፊአዊ ጉዳዮች የመማር ዓላማዎችን ማለትም የተማሪዎችን ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ክህሎት፤እና ተሳትፎ እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ሽ? ከሆነ እንዴት? በእኩል መጠን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ሻል?

መምህር 1- የ9ኛ ክፍል መጽሐፉ በጥሩ ሁኔታ የተዓፉ የትምህርት አላማዎችን ይዟል ብየ አስባለሁ። ነገር ግን አላማዎች የሚያተኩሩት ዕውቀት ላይ ነው።

መምህር 2- አይ አላማዎች ትንሽ ናቸው። ሁሉን "domain" አካተዋል ብየም አላስብም።

መምህር 3- አላማዎች ለተማሪዎች በሚገባቸው መልኩ ነው የተቀመጡት። ስለዚህ ግልፅ ናቸው።

መምህር 4- ጥሩ አላማ ነው ያሉት ግን ትኩረት የሚያደርጉት ዕውቀት ላይ ነው።

መመህር 5- አላማዎች አሉ ግን ሁሉም አላማዎች ላይ ትኩረት ቢያተኩሩ ጥሩ ነው።

መመህር 6- ያው ይዘት ካለ አላማ አለ። ስለዚህ በእያንዳንዱ ይዘት ላይ የተቀመጡት አላማዎች በቂ ናቸው።

ጥያቄ 3፡- በበ9ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ በወቅታዊ ጅኦግራፊአዊ ጉዳዮች(CGIs) ስር ማለትም በአፈር መሸርሸር፤ የመሬት መራቆት፤ የደን መጨፍጨፍ፤የህዝብ ብዛት መጨመር፤ እና የአካባቢ ብክለት ያሉ ተግባራት(Instractional Activities) አራቱንም የወቅታዊ ጅኦግራፊአዊ ጉዳዮች የመማር ዓላማ ማለትም የተማሪዎችን ወቅታዊ

ጅኦግራፊአዊ ጉዳዮች(CGIs) ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ክህሎት፤ እና ችግሮችን ለመፍታት ያለቸወን ተሳትፎ እኩል በሆነ መንገድ ለመጨመር እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ሽ ከሆን እንዴት በእኩል መጠን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ሽ

መምህር 1፡ በአካባቢያችን ዙሪያ መልካም አመለካከት መኖር አካባቢያችን እንድንጠብቅ ያደርገናል፡፡ በጎ አመለካከት ከሌለን አካባቢያችንን በደንብ መጠበቅ አንችልም፡፡ ስለዚህ በጅኦግራፊ መጽሐፍ ውስጡ ያሉ ተግባራት የተማሪዎችን አመለካከት የሚያሳድጉ መሆን አለባቸው ብዬ አምናለሁ፡፡ ይህ ደግሞ ተማሪዎች አካባቢያቸውን ንቁ ሆነው እንዲጠብቁና ችግሩን እንዲፈቱ ያደርገዋል፡፡

መምህር 2፡ ጥሩ ተግባራት መጽሐፉ ውስጥ አሉ፡፡ ነገር ግን ዕውቀት ላይ ነው የሚያተኩሩት፡፡

መምህር 3፡ በእርግጥ መጽሐፉ ብዙ ተግባራትን ይዟል፡፡ ተግባራቱ በብዛት የሚያተኩሩት ግን የተማሪዎችን እውቀት መጨመር ላይ ነው፡፡ ሌሎች አላማዎች ላይ ግን ትኩረቱ አናሳ ነው፡፡ ለምሳሌ የተማሪዎችን አመለካከትና ክህሎት ለማዳበር የተቀመጡ ተግባራት ጥቂት ናቸው፡፡ ስለዚህ አመለካከትና ክህሎትን ለመጨመር የሚያገለግሉ ተግባራት መጨመር አለባቸው፡፡

መምህር 4፡ እንደኔ ተግባራቱ ጥሩ ናቸው፡፡ ሁለቱም ነገር ያሟሉ ናቸው፡፡ ማለትም የተማሪዎችን እውቀት፤ክህሎት፤አመለካክትና ተሳትፎ እኩል በሆነ መልኩ አቅርበዋል ብየ አምናለሁ፡፡

መምህር 5፡ ተግባራቱ ጥሩ ናቸው፡፡ የተማሪዎችን እውቀት፣ አመለካክትና ክህሎት ያሳድጋሉ፡

መምህር 6፡ ጥሩ ናቸው ብየ አምናለሁ፡፡

ጥያቄ 4፡- ከላይ የተጠቀሱትን ወቅታዊና አንገብጋቢ ጅኦግራፊአዊ ጉዳዮች በክፍል ውስጥ ስታስተምር የገጠመህ ዋና ዋና ችግሮች ምን ምን ናቸው? እነዚህ ችግሮች እንዴት ነው ተጥኖ ያሳደሩብህ/ሽ?

4.1 ከጅኦግራፍ መጽሐፍ አንፃር

መምህር1- መፅሀፍቱ ጥሩ ናቸው ግን ክህሎትን የሚያዳብሩ ተግባራት ላይ ቢያተኩሩ ጥሩ ነው ብዬ አስባለሁ

መምህር 2- አዎ በመጽሐፉ የቀረቡት ኢሹዎች በጣም ጥሩ ናቸው ግን የአካባቢያችንን ተጨባጭ ሁኔታ ግን ያገናዘቡ አይመስለኝም። ይህንን ለማድረግ ይቀራቸዋል።

መምህር 3- የ9ኛ እና 10ኛ ክፍል የጅኦግራፊ መጽሐፍትን እንዳየኋቸው ከሆነ በአለም አቀፍም ሆነ በኢትዮጵያ በጣም አንገብጋቢ የሆኑ ወቅታዊ ጉዳዮችን ነው ያካተቱት። ነገር ግን በመጽሐፉ የቀረቡበት መንገድ ትክክል አይመስለኝም ምክንያቱም በብዛት የሚያተኩሩት ዕውቀት ላይ ነው። የተማሪዎችን ጥልቅ የሆነ አስተሳሰብና ችግር የመፍታት አቅማቸውን ከማጐልበት አንፃር ግን ዝቅተኛ ናቸው። ስለዚህ የተማሪዎችን ክህሎት ለማዳበር እኔም ሳሳተምር ተቸግሪያለሁ። የአመለካከት ለውጥ ለማምጣትም መፅሐፉ ላይ የተካተቱት ነገሮች በቂ አይደሉም ብዬ አስባለሁ።

መምህር 4- ለእኔ የ9ኛ ክፍል መጽሐፍ ተመችቶኛል።

መምህር 5- በመጠኑ ጥሩ ናቸው ግን ይዘቶች ስፋት ስላአላቸው ለመጨረስና የተግባር ስራ ለማሰራት እንቸገራለን።

4.2 ከስልጠና ማነስ አንፃር

መምህር 3፡- የእኔ የማስተማር ዘዴ ብዙ ጊዜ ገለፃ ነው፤ ምክንያቱም ስለሌሎች የማስተማር ዘዴዎች በቂ ስለጠና አላገኘሁም። ስለዚህ ስልጠና መሰጠት አለበት።

መምህር 4፡- የስልጠና ማነስ ወቅታዊ ጉዳዮችን በደንብ እንዳላቀርብ ገድቦኛል። በቂ ስልጠና ባገኝ ኖሮ ወቅታዊ ጉዳዮችን ክፍል ውስጥ በተገቢው መንገድ አቀርባቸው ነበር።

መምህር 6፡- ወቅታዊ ጉዳዮችን ለተማሪዎች እንዲወያዩ ሳደርግ ብዙ ውይይቶችን ከአካባቢው/ወቅቱ ተጨባጭ ሁኔታ ጋር ማገናኘት አልችልም። ምክንያቱም ስለተክሰቱት ወቅታዊ ጉዳዮች ላይ በቂ መረጃ የለኝም ከኢንተርኔትም ማውረድ አልችል። የኢንተርኔት አክሰስ ስለሌለ። ስለዚህ ከGeography መጽሐፉ ላይ ባለው ማተኮር ነው። እነዚህ ደግሞ ለምሳሌ ምሳሌዎችና መረጃዎች ወቅቱን ያገናዘቡ ላይሆኑ ይችላሉ ተማሪዎችንም በወቅቱ የተፈጠሩ አካባቢያዊ ችግሮችን investigate እንዲያደርጉ ማድረግ አልችልም። የኢንተርኔት ሶርስ መጠቀም ስለአልቻልኩ፣

ተማሪዎችን በወቅታዊ እና አንገብጋቢ በሆኑ ጉዳዮች ላይ ማሳተፍ አልቻልኩም፣ ክህሎታቸውንም እንዲያሻሽሉ ማድረግ አልቻልሁም።

4.3 ከግብዓት አንፃር

መምህር 1፡- ወቅታዊ ጉዳዮችን ክፍል ውስጥ በደንብ ለማቅረብ የተለያዩ አዳዲስ የመረጃ ምንጮች ያስፈልጋሉ። ነገር ግን በአሁኑ ሰዓት ያለ ኢንተርኔት እና ያለ ቴክኖሎጅ ዕውቀት አዳዲስ መረጃዎችን ማግኘት አይቻልም። ስለዚህ ይህ የእኔ ዋና ችግር ስለሁነ ኢንተርኔት ያስፈልገኛል።

መምህር 1፡- በ9ኛና 10ኛ ክፍል የተካተቱት ወቅታዊና አንገብጋቢ ጉዳዮች ለምሳሌ የአፈር መሸርሸር፤ የመሬት መራቆት፤ የአካባቢ ብክለት ወይም የአየር ንብረት ለውጥን ለማስተማር የዲጂታል ሪሶርሶችን ለምሳሌ የሳተላይት ምስል፡ ወቅታዊ የሆነ የኦንላይን መረጃ ወይም ቪዲዮ ይፈልጋሉ። ነገር ግን የሚመለከተው ተቋም የኢንተርኔት አክሰስና የዲጂታል መሳሪያዎችን ለምሳሌ ኮምፒውተር ማቅረብ አልቻለም። ስለዚህ ከላይ የተጠቀሱትን መሳሪያዎች መጠቀም ስለአልቻልኩ ወቅታዊ ጉዳዮችን በአግባቡ ማቅረብ አልቻልኩም።

4.4 ከጊዜ ማነስ አንፃር

መምህር 1፡- የጊዜ ማጠር ሌላው ችግር ነው ለምሳሌ የ9ኛና የ10ኛ ክፍል የጅኦግሪፊ መጽሐፍትን ብትመለከቱ ብዙ ይዘቶች ናቸው ያሉት። እነዚህን ለመሸፈን ብዙ ሰዓት ይወስዳሉ። መጽሐፉም ተጨማሪ ሰዓት ይወስዳል።

Appendix S: Grade 10 Students' Annotated Responses in In-depth Interview

ጥያቄ 1፡-10ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ በወቅታዊና አንገብጋቢ ጅኦግራፊአዊ ጉዳዮችን(CGIs) ስር ያሉ ይዘቶች ለምሳሌ የአየር ንብረት ለውጥ ምክንያቶች፤ ተጽኖዎች፤ መፍተሄዎች ወዘተ ያአንነተን/ያንችን ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ችሎታ፤እና ችግሮችን ለመፍታት ያለህን/ሽን ተሳትፎ እኩል በሆነ መንገድ ጨምረዋል ብለህ/ሽ ታምናለህ/ታምኛለሽ? ከጨመሩ እንዴት? በእኩል መጠን ካልጨመሩስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ሻል?

ተማሪ 1፡- በ10ኛ ክፍል ላይ ስለተካተቱት ወቅታዊና አንገብጋቢ ጉዳዮች ማለትም የአየር ንብረት ለውጥ፣ የህዝብ ዕድገት መጨመር የከተሞች ያለዕቅድ መስፋፋት፣እንዲሁም የአካባቢ ብክለት የተለያዩ አለማትን በተለያየ መልኩ እያጠቁ መሆኑን አውቃለሁ፡፡ እነዚህን ችግሮች ለመፍታትም የተለያዩ ባለድርሻ አካላት የራሳቸውን ሚና እየተወጡ ይገኛሉ፡፡ ስለእነዚህ ጉዳዩች ከታች ክፍልም ቢሆን ተምረናል፡፡ ምንም እንኳን ብንማር ችግሮች እየተባባሱ ነው የመጡት እንጅ ለውጥ የለም፡፡አመለካክታችንም አልተቀየረም፡፡

ተማሪ 2፡- አዎ መጽሐፉን በደንብ አንብቤዋለሁ፡፡ የተለያዩ ወቅታዊና አንገብጋቢዊና አለማቀፋዊ የሆኑ ጉዳዮችን አካትትዋል፡፡ የእያንዳንዱን ወቀታዊ ጅኦግራፊያዋ ጉዳዮች ምክንያቶች፣ ተዕዕኖዎች እና መፍትሄዎች ላይ በቂ እውቀት አግኝቻለሁ፡፡ በእነዚህ ጉዳዮች ላይ በቂ እውቀት መኖሩ ደግሞ ስለ አካባቢያዊ ችግሮች ትኩረት እንድሰጥ አድርጐኛል፡፡

ተማሪ 3፡- አዎ መጽሐፉን በደንብ አንብቤዋለሁ፡፡ ስለዚህ መጽሐፉን በማንበቤ እዉቀቴና አመለካክቴ ጨምርዋል፡፡ ስለዚህ ችግሮችን ለመፍታት እችላለሁ ማለት ነው፡፡

ተማሪ 4፡- በእየንዳነዱ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች ስር የተካተቱ ይዘቶች በጥልቀትና በግልጥ ተቀምጠዋል፡፡ስለዚህ እዉቀቴን፤ አሸሽያለሁ ብየ አምናለሁ፡፡ነገር ግን

አመለካክቴንና ክህሎቴን ግን አዳብሪያለሁ ብዬ አላስብም። ለአከባብ መጎዳት ያለኝ ስሜትም ይህን ያህል ነው ብዬ አላስብም።

ተማሪ 5፡- በመጽሐፉ ውስጥ የተዘረዘሩትን ጅኦግራፊያዋ ጉዳዮች የኢትዮጵያ ዋና ችግሮች ስለሆኑ ትኩረት ሰጥቸ አንብቢያቸዋለሁ። አመለካክቴም ጨምርዋል።

ተማሪ 6፡- በ10ኛ ክፍል የመማሪያ መጽሐፍ ላይ የተካተቱትን ወቅታዊና አንገብጋቢ ችግሮችን በደንብ አውቃቸዋለሁ። ከታች ክፍል ስለተማርኧቸውም ሳነባቸውና ስማራቸው በደንብ ይገቡኛል።ከተለያዩ ሚዲያዎችም ለምሳሌ ከ ቲቪ ስለማይ። በቀበሌያችን ያሉ የአካባቢ እንክብካቤ ባለሙያዎችም በተለያየ ጊዜ ስለወቅታዊ አካባቢያዊ ጉዳዮች ስለሚያስተምሩን በቂ መረጃ አለኝ። ምንም እንኳን እውቀቱ ቢኖረኝ ችግሮችን ለመፍታት የሚያገለግል ዕውቀት ግን አለኝ ብየ አላምንም። የተቆርቋሪነት ስሜቴንም በደንብ አላዳበርኩም።

ጥያቄ 2፡- በ10ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ በወቅታዊ ጅኦግራፊአዊ ጉዳዮች(CGIs) ስር ያሉ ተግባራት(Activities) አራቱንም ወቅታዊ ጅኦግራፊአዊ ጉዳዮች የመማር ዓላማ ማለትም የተማሪዎችን ወቅታዊ ጅኦግራፊያዊ ጉዳዮች ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ችሎታ፤እና ችግሮችን ለመፍታት ያለቸወን ተሳትፎ እኩል በሆነ መንገድ ለመጨመር ቀርበዋል ብለህ ታምናለህ/ታምኛለሽ? ከሆን እንዴት? በእኩል መጠን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ይመስልሻል?

ተማሪ 1፡- አብዛኛው ከመፃፉ ላይ ያየሁዋቸው ተግባራት በብዛት የሚያተኩሩት ስለ እያንዳንዱ ወቅታዊ ጅግራፊያዊ ምንነት ፤ መንስኤ፤ ተፅኖ እና መፍተሔ ላይ ነው የሚያተኩሩት። እኔም በእነዚህ ጉዳዮች ላየ ከጎደኞቸ ጋር ስወያይ እኔም በብዛት ስለተማርሁት ነገር ነዉ የማስታዉሰው። በዋናነት የሚጠቅሙትም ስለእያንዳነዱ ወቅታዊ ጉዳይ ምንነት፤ መንስዔ፤ ተፅኖ፤ እና መፍትሔ ላይ እዉቀትን ለማዳበር ነው። ነገር ግን ክህሎትን ፤ ተሳትፎንና ና አመለካክትን ለማዳበር የመጠቅሙ ተግባራት ግን በጣም ዉስን ነው።

ተማሪ2፡- በእንደኔ እይታ በ10ኛ ክፍል መጽሐፍ ላይ የተቀመጡት ወቅታዊ ጉዳዮች በግልፅና በጥሩ ሁኔታ ተቀምጠዋል ብዬ አስባለሁ። ምን እንደተማርንና አካባቢያዊ ችግሮችን እንድንፈታ ያበረታቱናል።

ተማሪ3፤አብዛኛው ያየሁዋቸው ተግባራት በብዛት የሚያተኩሩት ስለ እያንዳንዱ ወቅታዊ ጅኦግራፊያ ጉዳይ እዉቀታችንን እነድናዳብር እና ችግሮቹ በአለማቀፋዊም ሆነ በአገር አቀፍ ደረጃ ምን ያህል አሳሳቢ መሆናቸውን ነው፡ ፡ ነገር ግን መዕሀፉ ወቅታዊ አካባቢያዊ ችግሮችን ለመፍታት እንድንሳተፍና ችግሩን እንድንፈታ የማድረጉ መጠን በጣም ዉስን ነው፡፡

ተማሪ 4፡- እነደኔ ብዙ ተግባራትን ሰርቻለሁ ብዬ አስባለሁ፡፡ ነገር ግን እንደማስበዉ ከሆነ አብዛኛዎቹ ተግባራት የተማርነውን እንድናሰታውስ ነው የሚረዱን ናቸው፡፡ አመለካክታችንና ክህሎታችን ለማሳደግ የሚረዱ ተግባራት ግን በጣም ውስን ናቸው፡፡ ነገር ግን ተሳትፎዋችንን የሚያስደጉ አንድም የም፡፡

ተማሪ 5፡ መዕሐፉ ላይ የተቀመጡት ተግባራት ወቅታዊ ጅኦግራፊያዊ ጉዳዮች ላይ በተግባር እንድንሳተፍ ወይም ልምድ እንድንለዋወጥ አያደርጉም፡፡ የተለያዩ ፕሮጀክቶችን በተወሰኑ ወቅታዊ ጅግራፊያ ጉዳዮች ላይ እንድንሰራ አያደርጉም፡፡ የተለያዩ መረላዎችንም ለምሳሌ ዝና ኢነተርኔት ቴልቭዥን ና ሌሎችንም ተጠቅመን መረጃ እንድንሰበስብ አያበረታቱንም፡፡

ተማሪ 6፡-በተማሪዎች መዕሃፍ ላይ የተጠቀሱት ተግባራት የተማሪዎችን ዕውቀት፤ ክህሎት፤ አመለካክት እናተሳትፎ ላይ ተመጣጣኝ በሆነ መልኩ ማቅረብ አለባቸቀው፡፡ በተቃራኒው ግን አብዛኛው ተግባራት ትኩረት የሚያደርጉት የተማሪዎችን እወቀት መጨመር ላይ ነው፡፡ በተለይም ደግሞ ምክንያቶችን፤ ተርጉማቸውን፤ ተፅኖዋቸውንና መፍትሔዎች ላይ ነው የሚያተኩሩት፡፡ ስለዚህ ቀጣይ ካሪኩለም የሚያዘጋጁ አካላት ይህን ነገር ግንዛቤ ዉስጥ ማስገባት አለባቸው፡፡

ጥያቄ 3. የአንተ/የአንች የጅኦግራፊ መመህር ስለ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች ሲያስተምርህ፣ የትኞቹ ላይ ነው አንተ/አንች መሻሻል ያሳየኸው; ስለ ወቅታዊ ጅኦግራፊያዊ እዉቀት፤ አመለካከት፤ ክህሎት ወይስ ተሳትፎ ላይ?

3.1 እውቀት ላይ ያለህ/ሽ መሻሻልን በተመለከተ ምን ትላለህ/ሽ?

ተማሪ 1፡- እንደ እኔ እይታ 10ኛ ክፍል መዕሃፍ ላይ ስለተካተቱ Contemporary Geographic Issues ላይ ያለኝ እውቀት ጥሩ ነው፡፡ ግን እንደሁኔታው ይለያል፡፡ ለምሳሌ ወዲያውኑ እንደተማርሁ ጥሩ እውቀት ነበረኝ፡፡ ለምሳሌ ስለ Contemporary Geo-

graphic Issues መንስኤ፣ ተፅዕኖዎችና መፍትሄዎች ለይቸ አውቅ ነበር። አሁን ግን ሙሉ በሙሉ የተማርሁትን አላስታውስም የተወሰነ ነው የማውቀው። ምክንያቱም ያኔ ለፈተናም ሳጠናቸው ስለነበር፣፣

ተማሪ 2፡- በContemporary Geographic Issues ላይ ያለኝ ዕውቀት ከሌሎች የgeography ይዘቶች የተሻለ ነው። ይህ የሆነበት ምክንያትም ደግሞ በተደጋጋሚ ስለተማርኳቸው ነው። ለምሳሌ ስለ ህዝብ ብዛት፣ የአየር ንብረት ለውጥ፣ ስለአካባቢ ብክለት ብዙ ጊዜ ተምሪያለሁ። የተለያዩ መጽሐፎችንም አንብቢያለሁ። እርሶች ስለሚያስደስቱኝ ከኢንተርኔትም እፈልጋለሁ። የወላጆቸን lap top ወይም ስልክ በመጠቀም በተለይም ዩቱብን በመጠቀም ብዙ ነገሮችን አውቃለሁ ምክንያቱም ዩቱብe ብዙ ምስሎችን ስለሚያሳየ በተለይም ሰለምክንያቶች፣ ችግሮችና ስለመሳሰሉት ነገሮች ለምሳሌ climate change, coastal erosion እና ሌሎችም።

ተማሪ 3፡- የወቅታዊ ጅኦግራፍያዊ ጉዳዮች ይዘቶች በጣም ውስብስ የሚባሉ አይደሉም። ስለዙህ አንብቤ መረዳት እችላለሁ። ዋናው ነገር ደግሞ በአግባቡ ክፍል ውስጥ ከአካባቢው ተጨባጭ ሁኔታ ጋር እየተገናኙ ከተማርን በቀላሉ ይገባናል።

ተማሪ 4፡- እኔ ስለተለያዩ “Contemporary Geographic Issues” መንስኤዎች፣ ተፅዕኖዎች፣ እንዲሁም መፍትሄዎች ልረሳቸው አልችልም። ምክኒያቱም መምህሬ ተጨባጭ ነገሮች ጋር እያገናኘ ስለአስተማረኝ። ከዚህ በተጨማሪም ይዘቶቹ ውስብስብ አይደሉም፤ ስለዚህ በቀላሉ አንብቤ እረዳቸዋለሁ።

ተማሪ 5፡- የተወሰነ ለውጥ አለ ከተማርኩ በኋላ

ተማሪ 6፡- እንደ እኔ እይታ ስለ አየር ንብረት ለውጥ፣ ስለህዝብ ቁጥር መጨመር፣ ስለአካባቢ ብክለት እና ስለሌሎች ዕውቀቱ ከበፊቱ ብዙ የጨመረ አይመስለኝም። አሁን የተማርሁትም ከበፊቱ ከማውቀው ብዙም የተለየ አይደለም በፊትም ቢሆን ስለእያንዳንዱ ጉዳይ መንስኤ ተፅኖ እና መፍትሄዎሀት አውቃለሁ።

3.2 አመለካክት ላይ ያለህ/ሽ መሻሻልን በተመለከተ ምን ትላለህ/ሽ?

ተማሪ 1፡- የመምህሩ አቀራረብ በወቅታዊና አንገብጋቢ ጉዳዮች ላይ የተወሰነ ደረጃም ቢሆን ችግሮችን የመፍታት ክህሎቴን አዳብሮታል ብዬ አስባለሁ። በእነዚህ ጉዳዮች ላይ

ትኩረት የበለጠ እንድሰጥ ከማድረጉም በላይ ችግር የመፍታት ክህሎቴን አዳብሮልኛል ለምሳሌ ስለአየር ንብረት ከመማሬ በፊት ስለመንስኤዎችም ሆነ ስለ ተፅዕኖዎች ብዙም conscious አልነበርኩም። አሁን ግን እያንዳንዷ የሰው ልጅ እንቅስቃሴ ለአየር ንብረት ለውጥ አስተዋጽኦ እንዳለው ተረድቻለሁ። ስለዚህ ስማርም እያንዳንዱን በክፍል ውስጥ የምማረውን ከአካባቢው ተጨባጭ ሁኔታ ጋር አገናዝበዋለሁ። ለምሳሌ እንደ ጉርፍ፣ የደን መራቆት እንዲሁም ስለአየር ንብረት ለውጥ።

ተማሪ 2፡- ስለተለያዩ Contemporary Geographic Issues ስማር ስለመንስኤዎችና ስለተፅኖአቸው በንቃት እንድከታተል ሆኛለሁ። ለምሳሌ ስለ አየር ንብረት እና በአለም ላይ ስለአለው ተፅኖ ስማር ስለ እንስሳት፣ዕፅዋትና የሰው ልጅ እንዴት እንደሚጐዱ ስሜቴን ጐድተውኛል። ነገር ግን በተለይም ት/ቱ ከተማርኩ በኋላ ወይም በአሁኑ ሰዓት ይህ ስሜት ቀንሷል።

ተማሪ 3፡- አሁን ያለኝ ስሜት እንደበፊቱ አይሆንም ክህሎቴም እንደዚሁ።

ተማሪ 4፡- የስሜት /አመለካከት ለውጥ/ ብዙም ልዩነት የለው ከበፊቱና ከአሁኑ ማለቴ ነው።

ተማሪ 5፡- በእርግጥ ስትማር የተወሰነ ስሜትና ተነሳሽነት ይኖርሃል። አሁን ግን ብዙም የለኝም።

3.3 ክህሎት ላይ ያለህ/ሽ መሻሻልን በተመለከተ ምን ትላለህ/ሽ?

ተማሪ 1፡- የመምህሩ አቀራረብ በወቅታዊና አንገብጋቢ ጉዳዮች ላይ የተወሰነ ደረጃም ቢሆን ችግሮችን የመፍታት ክህሎቴን አዳብሮታል ብዬ አስባለሁ። በእነዚህ ጉዳዮች ላይ ትኩረት የበለጠ እንድሰጥ ከማድረጉም በላይ ችግር የመፍታት ክህሎቴን አዳብሮልኛል ለምሳሌ ስለአየር ንብረት ከመማሬ በፊት ስለመንስኤዎችም ሆነ ስለ ተፅዕኖዎች ብዙም conscious አልነበርኩም። አሁን ግን እያንዳንዷ የሰው ልጅ እንቅስቃሴ ለአየር ንብረት ለውጥ አስተዋጽኦ እንዳለው ተረድቻለሁ። ስለዚህ ስማርም እያንዳንዱን በክፍል ውስጥ የምማረውን ከአካባቢው ተጨባጭ ሁኔታ ጋር አገናዝበዋለሁ። ለምሳሌ እንደ ጉርፍ፣ የደን መራቆት እንዲሁም ስለአየር ንብረት ለውጥ።

ተማሪ 2፡- ስለተለያዩ Contemporary Geographic Issues ስማር ስለመንስኤዎችና ስለተፅኖአቸው በንቃት እንድከታተል ሆኛለሁ። ለምሳሌ ስለ አየር ንብረት እና በአለም

ላይ ስለአለው ተፅኖ ስማር ስለ እንስሳት፣ዕፅዋትና የሰው ልጅ እንዴት እንደሚጐዱ ስሜቴን ጐድተውኛል። ነገር ግን በተለይም ት/ቱ ከተማርኩ በኋላ ወይም በአሁኑ ሰዓት ይህ ስሜት ቀንሷል።

ተማሪ 3፡- አሁን ያለኝ ስሜት እንደበፊቱ አይሆንም ክህሎቱም እንደዚሁ።

ተማሪ 4፡- የስሜት /አመለካከት ለውጥ/ ብዙም ልዩነት የለው ከበፊቱና ከአሁኑ ማለቴ ነው።

ተማሪ 5፡- በእርግጥ ስትማር የተወሰነ ስሜትና ተነሳሽነት ይኖርሃል። አሁን ግን ብዙም የለኝም።

3.4 ችግሮችን ለመፍታት ካለህ/ሽ ተነሳሽነት አኩዋያስ ያሸሻልኸው/ያሸሻልሸው ነገር አለ?

ተማሪ 1፡- መጀመሪያ ክፍል ውስጥ ስለ እነዚህ “Issues” ስማር ችግሮችን ለመፍታት ከፍተኛ ፍላጐት ነበረኝ። ለምሳሌ አካባቢን ለማፅዳት እና ዛፍ ለመትከል ደስተኛ ነበርኩ። የአካባቢ ሳይንስ ክበብ ለመሳተፍ ፍላጐቱ ነበረኝ ነገር ግን ፈተና ከተፈተንኩ በኋላ እንደበፊቱ ለመስራት ዝግጁ አይደለሁም። ፍላጐቴ ቀንሷል ማለት ነው።

ተማሪ 2፡-ስለወቅታዊና አንገብጋቢ ጉዳዮች ስማር በስሜት ነበር የምማረው ችግሮችን ለመፍታትም ዝግጁ ነበርኩ በኋላ ግን ችግሮችን ለመፍታት ያለኝ ሀሳብ እየቀነሰ ሄደ። ምክንያቱም ትምህርቱ ካበቃ በኋላ የሚያነሳሳኝ አልነበረም ስለዚህ አሁን ያለህ ተነሳሽነት ብትለኝ አለኝ ግን እንደበፊቱ አይደለም።

ተማሪ 3፡- ታቃለህ መጀመሪያ በተለይም ስለ አየር ንብረት ለውጥና ስለህዝብ መብዛት ስማር በጣም ተነሳሽነቱ ነበረኝ ችግሮችን ለመፍታት። ከቤተሰቤና ከጐረቤቶች ጋርም እወያይ ነበር። ያ ተነሳሽነት አሁን ግን የለም። ምክንያቱም ትምህርቱ ስለአበቃ።

ተማሪ 4፡- ስለወቅታዊና አንገብጋቢያዊ ጉዳዮች ስማር ችግሮችን ለመፍታት ስሜቴ ይነሳሳል። አሁን ችግሮችን ለመፍታት ዝግጁ ነኝ ብየ አምናለሁ። ማለትም አካባቢየን ከአየር ንብረት ለውጥ፣ ከአካባቢ ብክለት። ስለዚህ ለማሳተፍ ሀሳቡ አለኝ የሚያሳትፍ ከተገኘ ለማለት ነው፡ በተለይም ከባለድርሻ አካላት ጋር ሆኜ መስራት እፈልጋለሁ።

ተማሪ 5፡- እንደበፊቱ ባይሆንም አሁንም አለ ያው የተወሰነ ማለት ነው።

ተማሪ 6፡- በ Contemporary Geographic Issues ምክንያት የሚመጡ ችግሮችን ለመፍታት ዝግጁ ነኝ ። አሁንም ቢሆን።

Appendix T: Grade 10 Geography Teachers' Annotated Responses in In-depth Interview

ጥያቄ 1፡-በ10ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ የተካተቱ ወቅታዊ ጅኦግራፊያዊ ጉዳዮች(Contemporary Geographic Issues) ማለትም የህዝብ ብዛት መጨመር፤ የአየር ንብረት ለውጥ፤ ከእቅድ ውጭ የከተሞች መስፋፋትና፤የአካባቢ ብክለት አለም አቀፋዊ ወይም አገራዊ ችግሮችን ያካተቱ ናቸው ብለህ/ብለሽ ታምናለህ/ታምኛለሽ? በእነዚህ ጉዳዮችን(CGIs) ስር ያሉ ይዘቶች ለምሳሌ የአየር ንብረት ለውጥ ምክንያቶች፤ ተጽኖዎች፤ መፍተሄዎች ወዘተ የተማሪዎችን ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ችሎታ፤እና ችግሮችን ለመፍታት ያላቸወን ተሳትፎ እኩል በሆነ መንገድ ይጨምሩታለ ብለህ/ሽ ታምናለህ/ሽ? ከጨመሩ እንዴት? በእኩል መጠን ካልጨመሩስ ከየትኛው ላይ የሚያተኩሩ ይመስልሀል?

መምህር 1፡- በ10ኛ ክፍል የጅኦግራፊ መማሪያ መጽሐፍ ላይ የቀረቡት ወቅታዊና አንገብጋቢ ጅኦግራፊያዊ ጉዳዮች በጣም ተገቢና ወቅታዊ ናቸው። እነሱም በመጽሐፉ ውስጥ ለተማሪዎች ጥሩ ግንዛቤ እንዲያስጨብጡ ሆነው ተቀምጠዋል። በተለይም ስለ እያንዳንዱ ጉዳይ ምክንያቶች፣ የሚያደርሱት ተፅኖ እና የመፍትሔ ሀሳቦች ላይ ትኩረት ሰጥተዋል። ስለዚህ ተማሪዎች በቂ እውቀት ይይዛሉ ብዬ አስባለሁ።በሌላ መልኩ ግን መጽሐፉ የተማሪዎችን አመለካከትና እውቀት ያሳድጋል ብዬ አላምንም ምክንያቱም ዕውቀት ላይ ነው የሚያተኩረው።

መምህር 2፡- የ10ኛ ክፍል መጽሐፍን በጥሩ ሁኔታ አንብቤዋለሁ ብዬ አስባለሁ። ያካተታቸው ወቅታዊ ጉዳዮችም ጥሩ ናቸው። ለምሳሌ Climate change በጣም አንገብጋቢ ጉዳይ ነው። ስለዚህም ተማሪዎች በተለይም ስለ ምክንያቱ፣ ተፅዕኖውና መፍትሔው በደምብ

ያውቀሉ ብዬ አስባለሁ። ምናልባት አቀራረቡ የተማዎችን ችግር የመፍታት ሃይል ላይጨምር ይችላል።

መምህር 3፡- እንደኔ የቀረቡት ጉዳዮች ጥሩ ናቸው ብዬ አስባለሁ።

መምህር 4፡- አይ ለእኔ ተመችተውኛል። ተማሪዎችም ጥሩ እውቀት ያገኛሉ ብዬ አስባለሁ፡

መምህር 5፡- የቀረቡት ጉዳዮት ጥሩ ናቸው ግን ችግሩ በዚህ ብቻ አይፈታም ማህበረሰቡ ግን መተባበር አለበት።

መምህር 6፡- ጥሩ ናቸው ግን ከእነዚህ በተሻሉ አንገብጋቢ ጉዳዮች አሉ። ለምሳሌ ስለ ግጭት አፈታት ቢጨመር ጥሩ ነው።

ጥያቄ 2፡- በ10ኛ ክፍል የጅኦግራፊ መጽሐፍ ላይ በወቅታዊ ጅኦግራፊአዊ ጉዳዮች(Contemporary Geographic Issues) ስር ማለትም የህዝብ ብዛት መጨመር፤ የአየር ንብረት ለውጥ፤ ከእቅድ ውጭ የከተሞች መስፋፋትና፤የአካባቢ ብክለት የተካተቱ የትምህርት ዓላማዎች(Learning Objectives) አራቱንም ወቅታዊ ጅኦግራፊአዊ ጉዳዮች(CGIs)የመማር ዓላማ ማለትም የተማሪዎችን ወቅታዊ ጅኦግራፊአዊ ጉዳዮች ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ችሎታ፤እና ችግሮችን ለመፍታት ያለቸወን ተሳትፎ ለመጨመር እኩል በሆነ መንገድ ቀርበዋል ብለህ ታምናለህ/ታምኛለሽ? ከሆን እንዴት? በእኩል መጠን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ይመስልሻል?

መምህር 1፡- አላማዎችን አሁን ማስታዎስ አልችልም ግን ይዘቱ ጥሩ ስለሆነ አለማዎችም ጥሩ ናቸው ብየ አስባለሁ።

መምህር 2፡- ጥሩ አላማዎች ነው ያሉት። ግን ተግባር ላይ ቢያተኩሩ ጥሩ ይመስሉኛል።

መምህር 3፡- አላማዎቹ ጥሩ ናቸው ብዬ አስባለሁ ግን በቂ አይደሉም።

መምህር 4፡- አይ ስለ አላማዎች ይህን ለማለት ይከብደኛል። ምክንያቱም የትምህርት አላማን ማውጣት ከባድ ስለሆነ።

መምህር 5፡- ጥሩ ናቸው ቁጥራቸው ከማነሱ እና አካታች ካለመሆናቸው በስተቀር።

መምህር 6፡- በተቀመጡት የትምህርት አላማዎች በጣም ነው የምኮራው፤ ማለቴ በግልፅነታቸው። ግን አላማዎቹ አመለካከትና ክህሎት ላይ አያተኩሩም ማለት ይቻላል

ጥያቄ 3፡- በ10ኛ ክፍል የጅኦገራፊ መጽሐፍ ላይ በወቅታዊና አንገብጋቢ ጅኦግራፊአዊ ጉዳዮች(CGIs) ስር ማለትም የህዝብ ብዛት መጨመር፤ የአየር ንብረት ለውጥ፤ ከእቅድ ውጭ የከተሞች መስፋፋትና፤የአካባቢ ብክለት እና የአካባቢ ብክለት የተካተቱ

ተግባራት(Instructional Activities) አራቱንም ወቅታዊና አንገብጋቢ ጅኦግራፊአዊ ጉዳዮች(CGIs) የመማር ዓላማ ማለትም የተማሪዎችን ወቅታዊና አንገብጋቢ ጅኦግራፊአዊ ጉዳዮች ዕውቀት፤አመለካከት፤ ችግሮችን የመፍታት ችሎታ፤እና ችግሮችን ለመፍታት ያለቸወን ተሳትፎ እኩል በሆነ መንገድ ለመጨመር ቀርበዋል ብለህ ታምናለህ/ሽ? ከሆን እንዴት? በእኩል መጠን ካልቀረቡስ ከየትኛው ላይ የሚያተኩሩ ይመስልሃል/ሽ ?

መምህር 1፡- በመማሪያ መጽሐፍት ላይ የሚቀመጡ ተግባራት የተማሪዎችን አውቀት፣ ክህሎት አመለካከትና ተሳትፎ ያዳብራሉ ብዬ አምናለሁ፡፡ የ10ኛ ክፍልን መጽሐፉን እንዳየሁት ግን መጽሐፉ ትኩረት የሚያደርገው ግን ዕውቀት ላይ ብቻ ነው፡፡ በተለይም ትርጉም/ገለፃ ላይ ነው፡፡ ከዚህ በተጨሪም መንስኤዎችን፣ ምክንያቶችን፣ ተፅዕኖዎችንና መፍትሄዎች ላይ ያተኩራሉ፡፡ ስለዚህ የወደፊት መጽሐፍ የሚያዘጋጁ አካላት ይህን ጉዳይ ግንዛቤ ውስጥ ማስገባት አለባቸው፡፡

መምህር 2፡- በ10ኛ ክፍል መጽሐፍ ውስጥ ያሉ ተግባራት አንድ አላማ ላይ ነው ያተኮሩት፡፡ ይህም እውቀት ላይ ነው፡፡

መምህር 3፡- መጽሐፉ ላይ ያሉ ተግባራት ሁሉም አላማዎች ላይ ያተኮሩ አይመስለኝም፡፡

መምህር 4፡- ዕውቀት ላይ ነው የሚያተኩሩት፡፡

መምህር 5፡- ጥሩ ናቸው፡፡ ግን ክህሎትን አያዳብሩም፡፡

መምህር 6፡- በዕውቀት ላይ ማተኮራቸው ጥሩ ሆኖ ሌሎች ለምሳሌ ክህሎት ላይ ቢያተኩሩ መልካም ነው፡፡

ጥያቄ 4፡ከላይ የተጠቀሱትን ወቅታዊና ጅኦግራፊአዊ ጉዳዮች(CGIs) በክፍል ውስጥ ስታስተምር የገጠመህ/ሽ ዋና ዋና ችግሮች ምን ምን ናቸው? እነዚህ ችግሮች እንዴት ነው ተፅኖ ያሳደሩብህ/ሽ?

4.1 ክልምድ ማነስ አንፃር

መምህር 3፡- እነዚህን ወቅታዊ ጉዳዮች በጥሩ ሁኔታ ለማቅረብ ችግር ገጥሞኛል፡፡ ይህም የልምድ ማነስ ነው፡ ዩኒቨርሲቲ ከተማርኩት ውስጥ እነዚህን ኢሹዎች በተመለከተ እንዴት ማስተማር እንዳለብኝ ስልጠና ወስጀ አላውቅም፡፡ ስለዚህ እነዚህን ጉዳዮች ከአካባቢው ተጨባጭ ሁኔታ ጋር ለማገናኘት እቸገራለሁ፡፡ ተማሪዎችም እንዲተገብሩ ለማድረግ

መምህር 4፡- አንደኛው ችግሬ የልምድ ማነስ ነው ስለ ጂኦግራፊ ትምህርት ጥሩ እውቀት አለኝ ብዬ አስባለሁ፣ ወቅታዊ ጉዳዮችንም በተመለከተ ነገር ግን ለተገቢው ወቅታዊ ጉዳይ ተገቢ የሆነ የማስተማር ዘዴ ለመምረጥ እቸገራለሁ፡፡ በተለይም ደግሞ ከተማሪዎች ፍላጐትና ከአካባቢው ተጨባጭ ሁኔታ ጋር ለማዛመድ፡፡ ስለዚህ ብዙ ጊዜ ገለፃን እመርጣለሁ፡፡

መምህር 6፡- የእኔ ዋነኛ ችግር ይዘቶችንና አላማዎችን ሳስተምር አለማመጣጠን ነው፡፡

4.2 ከግብዓት ማነስ አንፃር

መምህር 2፡- በእኛ ትምህርት ቤት የኢንተርኔት አክሰስ የለም በቂ የሆኑ የዲጂታል መሳሪያዎችም የሉም፡፡ ለምሳሌ ዩስክቶፕ፣ ላፕቶፕ፡፡ ስለዚህ ወቅታዊ ችግሮችን ኢንተግሬት ማድረግ አልቻልሁም፡፡

4.3 ከጊዜ ማነስ አንፃር

መምህር 1፡- ሰዓት በጣም ትንሽ ነው፡፡ ይህ የሰዓት ማነስ ደግሞ በአብዛኛው ገለፃን በመጠቀም ሲለበሱን እንድሸፍን ያስገድደኛል፡፡ በተቃራኒው ደግሞ እነዚህ ወቅታዊ የሆኑ ጉዳዮች ውይይት የሚጠይቁ ናቸው ተማሪዎችም የተለያዩ ተግባራትን እንዲያከናውኑ እና እንዲመራመሩ ይፈልጋሉ፡፡ ስለዚህ በዚህ የሰዓት ችግር ምክንያት መጽሐፉን ብቻ እንድንሸፍን እንገደዳለን ማለት ነው፡፡

መምህር 2፡- በ10ኛ ክፍል የተካተቱት ይዘቶች በጣም ብዙና የተለያዩ ናቸው፡፡ ነገር ግን እነዚህን ርዕሶች/ይዘቶች ለመሸፈን በሳምንት የተሰጠው ሰዓት አነስተኛ ነው፡፡

4 .4 ከመጽሐፉ አንፃር

መምህር 3፡- የ9ኛ 10ኛ ክፍል ተማሪዎችን ሳስተምር በመጽሐፉ ውስጥ የተካተቱት ወቅታዊ ጉዳዮች ጥሩ ቢሆኑም እንዴት እንደምናቀርብ ግን ብዙም ፍንጭ አይሰጡም፡፡ ስለዚህ ብዙ ጊዜ የተለመዱትን የማስተማር ዘዴዎች ነው የምጠቀመው፡፡ ለምሳሌ የቡድን ውይይት, ገለፃ እንዲሁም ዲሞንስትሬሽን፡፡

መምህር 4፡- በኮንቴንት ደረጃ ጥሩ ናቸው ግን የተግባር ጉዳይ ይጐላቸዋል፡፡ ፋክት ላይ ነው በብዛት የሚያተኩሩት

መምህር 5፡- ጥሩ ናቸው ብዬ አስባለሁ

መምህር 6፡ ለመወሰን ይከብደኛል፡፡ በአብዛኛው ጥሩ ቢሆኑም ተግባር ላይ ቢያተኩሩ ጥሩ ናቸው

4.5 የማነቃቂያ ማነስ

መምህር 2፡- የማበረታቻ ማነስ ወቅታዊ ጉዳዮችን በተቻለኝ አቅም እንዳላቀርብ አድርጐኛል፡፡ እንደሚታወቀው መበረታታትና ሙያዊ ብቃት ወይም ትኩረት የተያያዙ ናቸው፡፡ ያለ ማበረታቻ ሙያህን ወደ ተግባር መቀየር አትችልም፡፡ ስለዚህ እኔም ብዙ ጊዜ የሚመለከተው አካል ስለማያበረታታኝ ወቅታዊና አንገብጋቢ የሆኑ ችግሮችን በሚጠበቅብኝ ልክ ለተማሪዎች አስተምሪያለሁ ብዬ አላስብም፡፡

መምህር 4፡- የማነቃቃት ማነስ ሌላው ችግር ነው፡፡ በእኛ ትምህርት ቤት የሚመለከታቸው አካላት የሚሰራውና የማይሰራው መምህር አይለይም፡፡ ይህ አለመበረታታት ደግሞ ማነኛውንም ሪስክ ወስጀ የተለያዩ የማስተማር ዘዴዎችን የማነቃቂያ መንገዶችን ተጠቅሜ ተማሪዎችን ያበቃሁ አይመስለኝም፡፡ ብበረታታ ኑሮ ግን የምችለውን መንገድ ተጠቅሜ ተማሪዎችን ማብቃት እችል ነበር፡፡