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Integration of Contemporary Geographic Issues in Grade 10 Geography Student Textbook

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Abstract
The primary objective of this study was to evaluate the integration of contemporary geographic issues in Grade 10 geography textbook. To achieve this objective, a descriptive research design was employed, utilizing students, textbook and teachers as samples. Data collection was conducted through document reviews and in-depth interviews, with both qualitative and quantitative analyses applied. The data from document reviews were analysed quantitatively using descriptive statistics and chi-square tests, and qualitatively through content analysis. In contrast, the data obtained from in-depth interviews were analysed qualitatively using thematic analysis. The findings indicated that while Grade 10 textbook includes some of the most common contemporary geographic issues, the integration of the various components of each CGI such as objectives, contents, and activities was inadequate. Most of the components of contemporary geographic issues under each issue mainly focused on enhancing students' knowledge and understanding of the issues. However, the textbook placed less emphasis on integrating components of contemporary geographic issues that foster students' attitudes and skills necessary for solving problems associated with these issues. The results imply that curriculum designers and textbook authors should ensure a balanced integration of components of contemporary geographic issues that enhance the three domains of learning such as knowledge, attitudes, and skills into educational materials, and each component should be presented in a manner that equally enhances students' understanding, attitudes, and problem-solving abilities regarding these geographic issues.

Keywords
Integration, Contemporary Geographic Issues, Learning Objectives, Learning Activities

1. Introduction
Throughout human history, there has been a continuous interaction and relationship between human beings and their environment. This long-standing interaction has led to significant environmental changes over time, and currently, our environment is deteriorating at an alarming rate, facing numerous problems (Değirmenci & Ilter, 2017). These pressing environmental issues often referred to as contemporary geographic issues (hereafter CGIs). These CGIs include global climate change, environmental pollution, soil and coastal erosion, drought, loss of biodiversity, deforestation and so on (Australia Geography Teachers Association, 2013). Currently, these CGIs negatively affect the environment, human life and sustainable development at the global and local levels. Thus, scientists have warned that if these environmental problems persist, the world will face significant costs in the future. Consequently, these issues have become central to the current global agenda (IPCC, 2018; Wang et al., 2017; WHO, 2019).

To address and mitigate problems related to CGIs, various stakeholders have undertaken numerous efforts at global and local levels. Significant financial resources have been allocated to combat climate change (Hess, 2021), rehabilitate degraded land (Adessi, 2021; UNDRR, 2021; UNCCD, 2019), restore watersheds (Naumann et al., 2021; Onuh et al, 2023), and combat desertification and drought (Viscidi & Graham, 2020; Vizcarra, 2020). However, there is a consensus that relying solely on these strategies is neither effective nor sustainable for addressing the current environmental issues. Consequently, the international community has increasingly focused on integrating CGIs into

school curricula as this approach aims to enhance the new generation's knowledge, awareness, skills, attitudes, and participation in addressing CGIs. To bolster these efforts, several international conferences have been held at various times and locations. These conferences include Stockholm in 1972, Belgrade in 1975, Tbilisi in 1977, Rio de Janeiro in 1992, Thessaloniki in 1997, and Johannesburg in 2002 (Palmer, 1998; Stevenson, 2007).

As a result, countries today incorporate various types of CGIs into their school curricula, guided by the principles established at international conferences and tailored to the specific CGIs prevalent within each country (Benjamin & Adu, 2019; Tiago, Rodrigues & Ramos, 2021).

Like many other countries, Ethiopia is significantly affected by various CGIs. The country has experienced the impacts of climate change and related factors such as droughts and flooding (Climate Risk Profile of Ethiopia, 2021), increased intense rainfall events which led to loss of life, damage to property and infrastructure, soil erosion, waterlogging of crops, decrease agricultural yields and rise food insecurity(FAO, 2018). Additionally, higher temperatures and increased aridity have caused stress to livestock and further reduced crop yields (UNDP-Ethiopia, 2013).

Rapid population growth has also become a major issue in Ethiopia, the second-most populous country in Africa, with a population approaching 123 million people (UNDP, 2022b). This significant population increase has impacted social, economic, and environmental activities (Kidane, 2020; Amare & Kidane, 2019; Aynalem, 2019). The high population growth also causes the increment of unemployment. Studies have shown that the unemployment rate in Ethiopia rose to 27.20% in 2022, up from 25.70% in 2020. Because of unemployment, youth migration has also become the other significant issue in Ethiopia (Labour and Migration Survey, 2021). The unplanned urbanization has also led to inefficiencies in urban land use across all cities, with a considerable portion of converted agricultural land remaining idle within built-up areas for extended periods (Nursu et al, 2021).

To address and minimize the problems associated with the above mentioned issues, Ethiopia has implemented various strategies. For instance, the country has focused on public awareness campaigns to educate citizens on handling hazardous environmental conditions caused by climate variability (Guduro, 2022), adopt/adopt both conservation and policy measures to combat climate change and related problems, introduce various interventions aimed at improving youth employment using Employment Creation Initiatives and Food Security Programs (Nzinga & Tsegay, 2012), enhance rural infrastructure, market access, and improve financial resources for rural youth (Fuad & Hakim, 2024).

Most importantly, Ethiopia has made efforts to raise public awareness and promote understandings related to environmental problems by incorporating CGIs into its education system (Ministry of Education, 2010, 2015; 2019). Revisions to the curriculum have been undertaken at various school levels to ensure that the education system remains relevant to students' lives and environmental challenges. Therefore, the government announced that curriculum designers and textbook authors should integrate various CGIs into the school curricula whenever a curricula revision is taking place. Despite these efforts, Ethiopia continues to face numerous challenges related to various CGIs at different times (Niang et al., 2014; UNEP, 2013; European Union Delegation to Ethiopia, 2016; Humanitarian Requirements Document, 2016). This indicates that there remains a significant gap in effectively integrating CGIs related to environmental issues into the school curricula. Furthermore, to the best of the investigator’s knowledge, there is no study that assesses whether the curricula materials developed after these events adequately address the specified CGIs and related problems. Therefore, this study aims to address the literature gap by examining how selected contemporary geographic issues such as climate change, population growth, unemployment, migration, and coastal erosion are integrated into the Grade 10 geography textbook.

1.2 Research Questions

This study aimed at answering the following questions

- How well are the selected contemporary geographic issues integrated into the Grade 10 geography textbook?
- To what extent are the objectives, contents, and activities related to each contemporary geographic issue integrated into the Grade 10 geography textbook?
- How does the integration of contemporary geographic issues affect Grade 10 students?

2. Methods and Materials

2.1 Research Approach and Design

For this study, a mixed methods approach was employed. This approach was chosen because it provides a more comprehensive understanding, deeper insight, and complete information about the phenomenon being investigated. Additionally, it minimizes the limitations inherent in a single quantitative or qualitative approach during data collection and analysis. Within this mixed methods framework, a descriptive research design was utilized. This design was selected to obtain relevant and precise information regarding the current status of integrating CGIs into grade 10 geography textbook.

2.2 Sample Size and Sampling Techniques

The main subject of this study was Grade 10 geography textbook, which was designed in 2022 and employed in 2023. This textbook was chosen for several compelling reasons. First, the textbook was developed and used recently

(2022/2023) particularly when a problem related to our environment has become a current issue. Thus, researchers believed that CGIs issues were integrated in the textbook. Second, the researchers believed that a textbook is very important to investigate how well contents, concepts, issues, objectives and activities related to CGIs are integrated, and it presents contents, objectives and activities in a structured and organized manner. Finally, geography textbook was preferred to other textbooks as geography by its nature studies more about the current environmental problems or issues than other subjects.

In addition, grade 10 students and teachers were included as participants in the study. The data obtained from these participants were used to complement the information gathered from the textbook analysis. The participants were selected from secondary schools located in two administrative zones: Awi and East Gojjam, both situated in the Amhara National Regional State of Ethiopia. These administrative zones were selected as the secondary schools in each zone are relatively close to where one of the investigators resides and works, making it feasible to conduct the research at a relatively low cost.

2.3 Data Collection Instruments

The primary data collection instrument for this study was document review. When employing document review as a data collection tool, it is essential to focus on current documents and issues. Therefore, the contents of grade 10 geography student textbook currently in use at schools were reviewed. The investigators used this instrument to assess the extent to which various CGIs are integrated into the material and to identify the type of contents/topics, objectives and activities integrated under each CGI.

To collect data from the textbook, the investigators followed a series of steps. First, a coding sheet was developed based on the identified categories. This process involved analyzing multiple units of the textbook, including the entire book, individual chapters, sections, paragraphs, and sentences. Second, the textbook was read thoroughly and repeatedly, with a focus on identifying topics, contents, problems, issues, objectives, activities, and messages related to CGIs as well as any missing issues. Finally, the analysis of the textbook contents was conducted using the guidelines provided by Elo and Kyngas (2007) and Bryman (2012).

In-depth interviews were also utilized in this study for three reasons. First, in-depth interviews allow participants to respond in an open-ended manner using their own words, rather than being confined to pre-determine questions or notions imposed by the investigator. Second, this method is valuable for collecting valid, reliable, and detailed data through direct contact with participants. Third, in-depth interviews are effective for uncovering hidden information. Thus, the data obtained from this method were used to support the larger quantitative and qualitative data obtained from document review. Thus, the items of the in-depth interview were prepared based on the main areas that the study focused on.

2.4 Data Analysis Techniques

The data obtained from document reviews and in-depth interviews were analysed using both quantitative and qualitative techniques. For the quantitative data gathered through document reviews, the following procedures were employed: The data were first coded, edited, and digitized, and then entered into SPSS 26 for analysis. Descriptive statistics, pie charts, and inferential statistics were used to analyze this data. Specifically, frequency, percentage, and pie charts were employed to examine the extent to which the contents, objectives, and activities related to CGIs were integrated into the textbooks. The chi-square test was used to determine if there was a significant difference between the expected and observed means regarding the integration of the three objectives-knowledge, attitudes, and skills within the textbook.

For the qualitative data collected through document reviews and in-depth interviews, the investigators followed a systematic process: The data were first transcribed, then read and re-read to gain an understanding. Subsequently, the data were coded, categorized, and thematized. Finally, both quantitative and qualitative data were integrated and presented through triangulation, providing a comprehensive view of the study's results.

3. Results

3.1 Types of Contemporary Geographic Issues Integrated in the Textbook

Based on the data obtained from the document review and in-depth interviews, the findings of the study are presented as follows. The document review revealed that Grade 10 geography students' textbook integrates some of the CGIs such as climate change, population growth, unemployment, unplanned urbanization, migration, and coastal pollution. Although the textbook addresses a relatively small number of CGIs compared to other contents found in the textbook, it includes the most prevalent issues at found both global and local levels. Under these contemporary geographic issues, various objectives, contents, and activities have also been incorporated. The ways the textbook integrates the objectives, contents and activities of each issue are presented below.

3.1.1 Integration of Contemporary Geographic Issue Objectives in the Textbook

As shown in Figure 1, Grade 10 geography textbook contains a total of 38 objectives. However, most of these objectives focus on other topics rather than CGIs. Out of the 38 objectives, only 8 are related to CGIs. Of these 8 CGI-related objectives, 75% are centered on the knowledge aspects of CGIs (see Figure 1). In contrast, only a small proportion of objectives are designed to enhance students' attitudes (12.5%) and skills (12.5%).

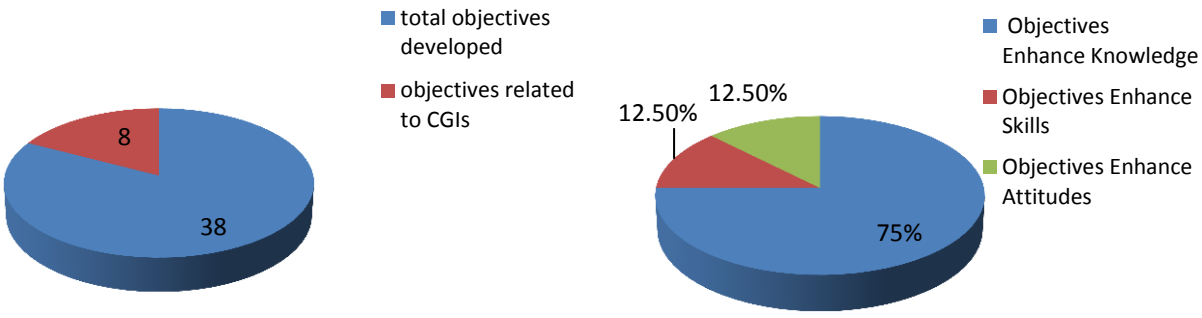

Fig. 1 Percentage of Objectives Integrated in Grade 10 Textbook

To assess whether there is a significant difference in number of observed and expected CGI objectives in relation to objectives developed in the textbook, chi-square goodness of fit test(X^2) was employed.

Table 1 Chi-square Goodness of Fit Test for CGI Objectives Developed in the Textbook

CGIs objectives	Observed Frequencies	Expected Frequencies	Chi-square(X^2)	Degree of Freedom
Knowledge	6	2.67	6.25	2
Skills	1	2.67		
Attitudes	1	2.67		
Total	8			

*p< 0.05

As indicated in Table 1, the Chi-square result shows a significant difference between the observed and expected frequencies of CGI objectives developed in Grade 10 geography student textbooks ($\chi^2(2, N = 3) = 6.25$). This implies that the three domains of learning (cognitive, affective, and psychomotor) on CGIs are not evenly distributed in the textbook. Specifically, the textbook appears to neglect objectives that enhance students' attitudes towards current environmental problems and the skills needed to address each CGI. Furthermore, the absence of objectives aimed at developing students' skills and participation in CGI-related problems may hinder their ability to develop critical thinking, analyze real-world environmental issues, and identify root causes and potential solutions. This deficiency could prevent learners from effectively applying problem-solving techniques, developing innovative solutions for environmental challenges, and adapting their strategies based on feedback and new information. This finding aligns with Rwobusiisi's et al. (2021) findings. Rwobusiisi et al. (2021) found that, although climate change is integrated into school curricula across many African countries, the objectives tend to focus on enhancing students' knowledge, with little attention given to developing learners' skills and attitudes.

3.1.2 Contents of Contemporary Geographic Issues Integrated in Grade 10 Geography Textbook

In grade 10 student textbook, CGIs such as climate change, population growth, unemployment, unplanned urbanization, migration, and coastal pollution are integrated. Although grade textbook addresses CGIs that are relevant at both global and local levels, the amount of contents incorporated under each CGI is relatively low compared to the total content found in the textbook. As shown in Figure 2, out of a total of 146 contents included in Grade 10 textbook, only 14 (5.8%) are related to CGIs.

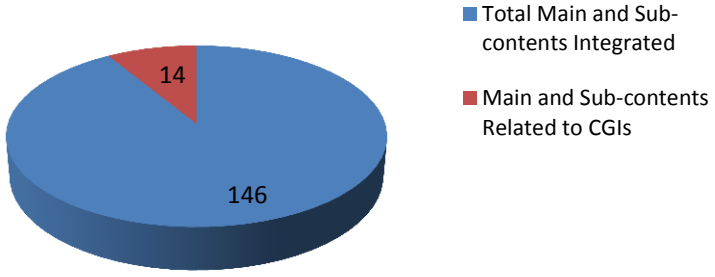

Fig. 2 Contents Included in Grade 10 Textbook

Table 2 Contents of CGIs Integrated in 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	3
		Causes	2	2
		Consequences	8	1
Unemployment	129	Definitions	1	4
		Causes	5	2
		Effects	10	1
		Solutions	5	2
Unplanned urbanization	161	Definition	1	3
		Causes	5	2
		Consequences	6	1
Migration	167	Definitions	1	2
		Causes	22	1
Coastal pollution	168	Definitions	0	4
		Causes	13	1
		Consequences	3	3
		Solutions	11	2

As the data obtained from document analysis in Table 2 indicated, Grade 10 textbook incorporates various types of contents under each CGI. The contents include definitions, causes, consequences, and sometimes solutions to these issues, and most of these contents focus on enhancing students' knowledge about the issues. However, the textbook falls short in integrating elements that would enhance students' skills, participation, and attitudes towards these issues. The textbook also lacks adequate local or global examples and case studies that illustrate the causes or consequences of each issue, and how people in different contexts address related problems. For instance, under the broad topic of climate change, the textbook includes only definitions (mentioned once), causes (discussed three times), and consequences (mentioned 25 times) (p. 44). Even these contents are not presented in a way that emphasizes the threat climate change poses to current and future generations.

Population growth is another CGI integrated into the Grade 10 textbook. As indicated in the table, the textbook includes contents such as definitions (2 times), causes (8 times), and consequences (6 times) of population growth (p. 146). These contents primarily focus on promoting students' knowledge and understanding of population growth. However, the textbook does not adequately incorporate elements used to enhance students' attitudes, sensitivity, skills, and participation related to this issue.

Unemployment is another CGI integrated into the Grade 10 textbook. Under this CGI, the textbook includes contents such as definitions, causes, effects, and solutions (p. 129). The definition of unemployment appears once, while the causes, effects, and solutions are discussed 5, 10, and 5 times, respectively. Although these contents contribute to understanding the problem of unemployment, the focus on enhancing students' attitudes and skills related to this issue is minimal.

According to the document review, only two types of content of migration such as definitions (1 time) and causes (22 times) of migration are covered in the textbook (p. 167-168). While these contents help students understand the concepts and causes of migration, the textbook appears to neglect elements that would enhance students' attitudes, sensitivity, skills, and participation in addressing migration issues. The final CGI integrated into the Grade 10 textbook is coastal pollution. The textbook includes contents on the causes (13 times), consequences (3 times), and solutions (11 times) of coastal pollution (p. 168-169).

The data obtained from interviews with Grade 10 students and 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. To begin with the students' responses, it was found that students have gained a good understanding of CGIs covered in the textbook, particularly on the meanings, causes, consequences, and, to some extent, solutions of these issues. 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. I can react to these problems and participate in solving environmental issues if invited." Student 5 also noted that he feels very concerned about problems such as population growth, migration, and unemployment, as they are major challenges in Ethiopia.

Conversely, four other participants felt that, although the issues integrated into the textbook impact the entire ecosystem globally, the textbook did not sufficiently address elements that would enhance their skills and participation in solving CGI-related problems. They argued that climate change is a significant driver of many contemporary global issues. However, the textbook only includes content on the causes, consequences, and solutions of climate change. It does

not cover specific climate change events occurring at different times and regions, their impacts, regional experiences, or how these regions address and protect against climate change-related problems. For example, Student 2 remarked:

> *Climate change is the worst environmental threat in every part of the globe including our local environment. It is the main agent of other contemporary issues like drought, famine [and]. It is caused by man and nature. However, the contents integrated under climate change do not show the severity of climate change. In Ethiopia, climate variability affects the people and biodiversity in different ways. However, any of the contents found in the textbook do not invite us to share such ideas and relate it to our own context.*

The respondents also noted that CGIs such as population growth, unemployment, unplanned urbanization, migration, and coastal pollution, as presented in the textbook, do not effectively develop their skills and participation in addressing these issues. They reported that the textbook lacks examples, case studies, stories, or historical events that could inspire them to engage more actively with environmental problems. Furthermore, the textbook does not provide sufficient content to foster a favourable and proactive mind-set towards each CGI and conservation efforts. Instead, the content primarily focuses on enhancing students' knowledge and understanding of the nature, causes, and consequences of these issues. In light of this, Student 1 states:

> *I know that population growth, unemployment, unplanned urbanization, migration 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 still I have not yet seen any changes in minimizing the effects of these issues on the environment and human beings.*

All Grade 10 geography teachers also reported that integrating issues such as climate change, population growth, unemployment, unplanned urbanization, migration, and coastal pollution into Grade 10 geography textbook is crucial, as these are significant concerns at both global and local levels. They noted that including these issues in the textbook helps students understand their causes, consequences, and solutions, thereby making their education more relevant to the world they live in. However, teachers reported that they observed some major problems in integrating CGIs into the textbook. They claimed that the textbook does not include key points necessary for developing students' skills and participation in addressing these problems. Additionally, it lacks contents that foster a deeper awareness of the issues and their local and global interconnectedness, as well as contents that equip students with problem-solving skills. More importantly, there are no elements in the textbook that encourage students to engage in discussions and projects related to contemporary geographic challenges. For example, Teacher 1 states:

> *In grade 10 textbook, CGIs that are most common at global and local level are integrated. However, textbook authors did not incorporate the major component or elements of CGIs. The incorporated contents do not empower the learners with skills used to address and prevent environmental problems with the sense of responsibility. Besides, the contents are not presented in the way the new generations involve in solving environmental problems, and it does not present best practices or models students follow to solve problems caused by these issues.*

Teacher 3 also states, “The contents presented in the textbook only inform students about the definitions, causes, consequences and solution of the issues.” Teacher 4 also adds, “The textbook should incorporate local case studies, real-world examples, events on each issue and activities used to participate in environmental problems.”

From the above findings, it can be inferred that although CGIs common at both global and local levels are integrated into Grade 10 geography textbook, the authors did not adequately address the most important components of these issues. The content included under each contemporary issue fails to convey the severity or risk associated with the issues through specific examples or case studies. Furthermore, the textbook does not enable learners to appreciate the importance of solving these problems sustainably. It also does not install a sense of personal responsibility in students to mitigate the impacts of these issues or encourage active engagement in environmentally friendly practices. More importantly, the textbook does not incorporate practical experiences or on-going learning opportunities, such as analyzing environmental issues, assessing their root causes, and evaluating potential solutions.

Similar findings have also been reported in studies conducted in other countries. For example, Oluwatobi, Adesina, and Jammeh (2019) in Gambia found that school curricula provide insufficient explanations of the impacts of various CGIs on human health and ecosystems. On the other hand, Nzobonimpa and Zamroni (2017) in Burundi found that the materials related to population growth were effective as they incorporate contents used to enhance students' perceptions, skills, attitudes, and participation concerning population growth, thereby meeting their educational needs. Nafisah et al (2022) also reported that environmental pollution is effectively integrated into social studies curricula in Indonesia, contributing to the development of students' competencies.

3.1.3 Learning Activities Integrated in the Textbook

Table 3 Activities and Questions Developed in Grade 10 Geography Textbook

Grade	Total No. of Activities Developed	Total Number of Questions in the Activities		Questions Related to CGIs	
		No.	%	No.	%
10	53	93	100	26	27.96

The data obtained from document reviews and in-depth analysis indicates that the textbook incorporate a variety of learning activities aimed at engaging students. Each activity interview data includes a number of questions designed to prompt students to perform various tasks. As shown in Table 3, Grade 10 textbook features a total of 53 activities, which include 93 questions. However, many of these questions focus on other topics other than CGIs. Of the 93 questions, only 26 (27.96%) are related to CGIs integrated into the textbook.

Furthermore, as indicated in Figure 4, the questions related to CGIs primarily focus on retrieving factual information such as definitions, causes, consequences, and occasionally solutions. While these questions serve to assess students' understanding of the content, there are few activities designed to enhance students' attitudes and skills concerning each CGI.

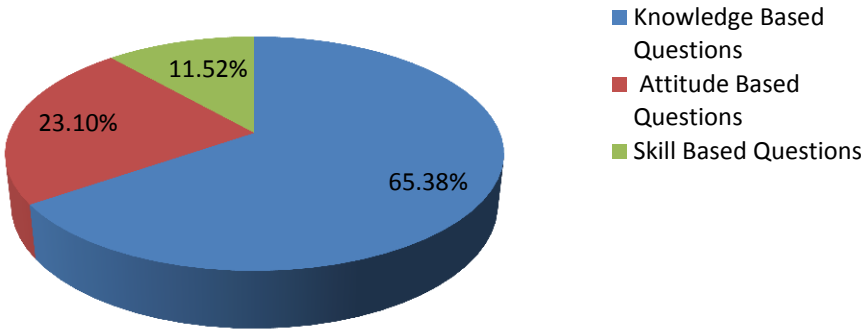

Fig. 3 Questions Focus on Learning Objectives

The data obtained from in-depth interviews with Grade 10 students and teachers also indicated that most of the activities designed in the students' textbook focus on developing their understanding of CGIs. However, activities aimed at enhancing students' problem-solving skills or inspiring them to take action on environmental problems or improve their natural surroundings is rarely included in the textbook. For example, Student 1 states:

> *The activities designed in the textbook helps me to recall what I have learned in the class. When I discuss using these questions with my classmates, I also retrieve facts related to CGIs and share knowledge on concepts related to CGIs. They are knowledge-based activities 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 are very few.*

The interview data from teachers also indicated that the activities in the students' textbooks do not adequately address the three key learning outcomes: knowledge, attitude, and skills that students are expected to achieve. Instead, most of the activities are designed to help students understand concepts related to CGIs. Few activities are aimed at developing students' attitudes and sensitivity toward these issues, and even fewer encourage the development of problem-solving skills related to each issue. For example, Teacher 1 stated, "When activities are designed in students' textbooks, they should aim to develop students' deeper understanding of contemporary geographic issues. Additionally, they should foster critical thinking and problem-solving skills related to these issues. However, most of the activities focus only on helping students understand the concepts related to contemporary geographic issues." Teacher 3 similarly noted, "The activities introduced in the textbook do not encourage learners to take responsibility for solving environmental problems. Instead, they are designed primarily to enhance students' knowledge and awareness of the issues presented in the textbook." Teachers 2, 4, 5, and 6 shared similar concerns, reinforcing the view that the activities need to be more focused on developing students' attitudes, sensitivity, and problem-solving skills related to CGIs. These findings differ somewhat from those of previous studies. For example, Kibga, Sentongo & Gakuba (2021) in Tanzania and Shutaleva (2023) in Russia found that the activities 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.

4. Conclusions

Based on the findings of the study, it was concluded that Grade 10 textbook integrates some of the most prevalent CGIs that impact both human beings and ecosystems at local and global levels. However, the integration of CGIs in terms of objectives, contents, and activities is inadequate. Most of the objectives in the textbook focus on enhancing students' knowledge and understanding of the nature, causes, consequences, and sometimes solutions of CGIs. Unfortunately, there is limited emphasis on objectives aimed at developing students' attitudes, sensitivity, and problem-solving skills related to these issues. Similarly, the contents integrated under each CGI primarily emphasize enhancing students' knowledge and understanding, with little attention given to promoting pro-environmental behavior and problem-solving skills. The activities and questions designed in Grade 10 textbook are also primarily used to assess students' understanding of the concepts related to each CGI. They do not encourage students to relate real-life problems into their lessons. Thus, the study's findings imply that curriculum designers and textbook authors need to incorporate CGIs into school curricula in a manner that covers all three learning domains: cognitive, affective, and psychomotor. This method would aid students in gaining not only solid knowledge but also positive attitudes, skills, and active engagement in tackling issues related to CGIs. The overall findings of study imply that curriculum designers and textbook authors should ensure that CGIs are integrated into school curricula in a way that addresses all three domains of learning: cognitive, affective, and psychomotor. This approach would help students develop not only good knowledge but also positive attitudes, skills, and active participation in addressing problems related to CGIs.

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Declaration of Conflict

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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