



Effectiveness of Geography Teaching Learning Strategies on Enhancing Academic Achievements in Geography Education

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ABSTRACT

Geography education is a vital subject that explores the world we live in, focusing on environmental and social processes and their interactions from local to global levels. The importance of geography increased with the growth of globalization in the 21st century. Recognising this, since the 2003 curriculum reforms in Sri Lanka, geography has been a compulsory subject for students in grades 6 to 9. To enhance academic performance and promote meaningful learning, the role of teachers is crucial. Teachers are expected to play a transformative role by employing various teaching methods to develop 21st-century skills and address current societal needs. This research examined the effectiveness of teaching learning strategies on enhancing academic achievements in junior secondary students. Researcher collected data from 274 students. These students randomly selected from 1AB national schools in Kelaniya education zone and 30 geography teachers using purposive sampling method. Data gathered from questioners and focus group discussions were analysed quantitatively and qualitatively. According to the study, it was noted that teaching learning strategies used by teachers significantly affects the performance in geography education. There is a positive correlation between teaching lessons with real world examples and students' academic performances. There are strategies with limited application such as ICT integration and collaborative learning approaches in the classrooms but students' preferences are there. It is recommended that teachers should primarily focus on collaborative learning and ICT integration in geography teaching and learning to improve students' academic performance as a result of their increased engagement with digital technologies and peer collaboration.

Keywords: Geography, Teaching Learning Strategies, Junior Secondary Students, Academic Achievements

INTRODUCTION

Children play a vital role in shaping both the present and future of a nation. In the current society, which is based on mental capacity, 21st century skills are more needed to fulfill the demand of this knowledge base society. Modern education systems are expected to promote active student participation and provide meaningful learning experiences both inside and outside the classroom, as these experiences strongly influence learning quality (Abdur,2023). Senadheera (n.d) explains that the teaching-learning process is a process that transforming and receiving set of knowledge, attitudes, and skills with or without a teacher and with or without the active participation of the learner. The absence of any of these elements may hinder the achievement of intended learning outcomes in the teaching learning process. Therefore, teachers need to understand learners' individual characteristics and adopt suitable teaching learning strategies that support creativity, critical thinking, and learner autonomy.

Geography plays a vital role in secondary education, as it helps students understand the physical, social, cultural, and economic aspects of our planet, and that knowledge will help them to move on in a highly competitive and interconnected world. (Gersmell,2014). The importance of geography education has increased with the globalization in 21st century. (Tuzun et al,2009). Geography education help learners to develop spatial awareness, global perspectives, and responsible citizenship. (Dixit & Dixit, 2024) In Sri Lanka, geography is a compulsory subject from Grades 6 to 9 and an optional subject in Grades 10 and 11, by reflecting its educational

value. This knowledge helps students explore complex concepts from multiple perspectives and increase problem-solving abilities. (Dixit & Dixit, 2024). Furthermore, geography education cultivates appreciation for diversity and cultural understanding. Students are exposed to a variety of global cultures, languages, customs, and viewpoints (Dixit & Dixit, 2024). Therefore, the importance of geography education for secondary students can't be overemphasized. And also, teacher's role is very crucial in teaching learning process. This study therefore aims to focus on impact of teaching learning strategies on academic achievements in junior secondary students.

LITERATURE REVIEW

Academic achievements and geography

Academic achievements reflect performance and outcomes that demonstrate how well a person has accomplished objectives within the given learning environment. (Steinmayr et al.2014). Improving students' academic achievement in geography has been the focus of numerous studies. Research indicates that teacher strategies and content knowledge play a vital role in enhancing students' performance in the geography teaching and learning process (Dem&sedan,2025).

Geography teaching learning strategies and theoretical background.

Traditional concepts in the teaching-learning process view the teacher as transmitting knowledge to students, with students acting as passive learners. Conversely, constructive theorists believe that the teacher serves as a facilitator, providing students opportunities for inquiry, cooperation, and exploration by drawing on their prior experience and using a variety of learning activities that the facilitator offers (Kumari & Kumar, 2023). This theory supports instructional approaches that enhance students' academic performance by engaging them with maps, case studies, fieldwork, and real-world geographical issues.

According to a study by Lagoudakis et al. (2022), students' academic performances in science-related subjects are significantly improved when brain-based learning (BBL) methodologies are adopted in secondary schools. The study highlights the importance of teaching methods that align with students' natural learning and information-processing styles, even though they are not specific to geography. Ibrahim and Murtala (2020) explored how active learning strategies, such as project-based learning and cooperative learning, influence the geography performance of secondary students in Nigeria. Their findings showed that students engaged in inquiry-based and cooperative learning tend to perform better in both formative and summative assessments.

Similarly, Kus et al. (2014) also stated that the cooperative learning method is effective in geography education to increase students' achievements. It boosts students' self-esteem, confidence, communication, problem-solving, and participatory skills in the teaching and learning process. Cognitive development theory is mainly based on Piaget's and Vygotsky's work. Piaget explained that when people work together, conflicts in teaching occur and lead to cognitive growth. Vygotsky explained that knowledge is social. Learning can be achieved through cooperation. According to social interaction theory, the way people interact indicates the outcomes of their cooperation. Negative interdependence creates conflict and obstacles to students' progress. However, in the education system, interaction among students is often neglected. It mostly occurs between teachers and students and between students and equipment.(Mukhsen, 2022) examined the effectiveness of cooperative learning on students' academic achievement using a quasi-experimental pre-test, post-test control group design. The study revealed that students who participated in cooperative learning activities demonstrated significantly higher academic achievement compared to those taught through traditional teacher centered methods.

A research study conducted in Turkey indicated that teacher strategies such as formative assessment interventions enhance students' achievements at all levels of education, including self-assessments, peer assessments, and group assessments. Moreover, the researcher suggests providing all teachers with professional development on how to use formative assessment strategies, as this is very important to encourage students' active participation in the classroom (Karaman, 2021). Another research result in Turkey showed that there is a positive impact of GIS on improving students' achievements. Not only that, it is a successful intervention for the attitude of students concerning geography lessons. Furthermore, this study pointed out that there is a need to eliminate barriers to

implementing GIS in schools in countries where GIS is used. (Demirci,2008). Similarly,Hursen and Beyoglu, (2025) investigated the impact of inquiry-based learning activities supported by Geographical Information Systems (GIS) on students' academic achievement, attitudes and geography literacy. Using a mixed method experimental design with an experimental and control group, researcher found that students who engaged in GIS supported inquiry activities demonstrated significantly higher academic performance and more positive attitudes toward learning Geography compared to those taught through traditional methods. Although no significant differences were found in basic location knowledge skills or general geographic knowledge between the groups, the experimental group showed notable gains in understanding human–environment interactions and in overall geography literacy perception. These results emphasize that integrating digital tools such as Google Earth, GIS, and mobile mapping applications enhances deeper conceptual understanding, motivation, and engagement, particularly when paired with student centred inquiry approaches. The study reinforces the growing evidence that technology enhanced instructional strategies contribute meaningfully to student learning and highlight the need for continued adoption of digital tools in Geography classrooms.

Benjamin (2014) stated that most teachers (85%) in schools use question-and-answer methods, while some teachers (56%) employ fieldwork. However, students prefer fieldwork. Therefore, Benjamin (2014) recommended using methods that are preferred by students and align with their syllabus. Similarly, Kocalar and Demirkaya (2017) noted that most teachers in Turkey utilise the narration and question-and-answer methods in geography teaching and learning. This indicates that teachers are not favouring alternative teaching methods suited to the subject. Furthermore, Scott (2006) emphasises the importance of fieldwork in geography, as it offers the opportunity to study the real world and provides an enjoyable experience for children. “Geography without field work like science without experiments” (Scott, 2006). This point is further reinforced by David Kolb's experiential learning theory (1984), which describes learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualisation, and active experimentation.

With the 2007 curriculum reforms in Sri Lanka in the new millennium, teachers' roles shifted from transmission to transformation, requiring teachers to become facilitators and guides in the teaching-learning process rather than directly imparting knowledge (Puteh & Nawastheen, 2013). The 5E model was adopted in response to these reforms. It is used as a pedagogical approach for teaching all subjects in the secondary school curriculum. Nawastheen (2013) states that teachers in Sri Lanka are aware of the 5E implementation, but many still focus on their personal interests. Therefore, the researcher suggests ongoing workshops and training to address this issue.

There is extensive research on the effectiveness of geography teaching and learning methods in improving academic achievements, but there are limited local studies on this subject. The significant research gap identified is that although studies exist, they often focus on only one approach and do not examine teaching and learning strategies holistically. Additionally, giving less importance to junior secondary education is a notable issue.

METHODOLOGY

This is a mixed methodology study. It involves the combination of qualitative and quantitative data. This study will take an explanatory sequential design in which the researcher first conducts quantitative research, analyses the results, and then builds on the results to explain them in more detail with qualitative research (Creswell & Creswell 2018). Pragmatism will be used as the research philosophy.

The target population comprised Grade 9 students enrolled in schools studying Geography, along with Geography teachers from six national schools in the Kelaniya Education Zone. The representative sample selected, using Krejcie and Morgan's (1970) sample size determination table, was 274 students randomly selected, with due consideration for proportionality. Thirty teachers using purposive sampling method participated in the quantitative phase, and ten teachers and students were selected purposively in the qualitative phase. The researcher developed questionnaires and focus group discussion as data collecting tools. Researcher used closed ended questioner to gather data. It is included frequency-based questions and Likert scaled questions. Questioner has two parts to be filled by students and teachers. In addition to the questioners, focus group discussions were conducted to get deeper view from teachers and students regarding geography teaching learning strategies. The questions for FGD were developed using the results from the descriptive analysis. The main areas discussed were the two most used strategies and the two least used strategies in the study. That is, real life

examples, audio visuals, ICT and collaborative learning, in order to get more details about the influence on geography students' performance. A small group of participants selected to share their views in an open discussion format, to share their opinions and views on geography teaching learning strategies.

In this study, both descriptive and inferential statistics methods were used to analyse the quantitative data. Researcher used descriptive statistics including mean and standard deviation to show the frequency of teaching learning strategy usage in geography classrooms. Researcher used inferential statistics specially chi square test of association was used to determine whether there is a significant relationship between teaching learning strategies and student academic performance.

Qualitative data analyse was used to give a more strengthen to the qualitative findings. Qualitative data analyse was done using thematic analysis. Manual coding will be used to evaluate qualitative data through thematic analysis.

Researcher request permission from the principals of selected schools and teachers to collect data from students and teachers. Researcher responsibility states that the data gathered from students and teachers will be kept completely confidential and only used for my research purpose.

Reliability of the questioner

Table 1 Reliability summary of teaching learning strategies scale

No table of figures entries found.	Value
Number of Cases (Valid)	274
Number of Items	8
Cronbach's Alpha	0.815
Reliability Level	High
Missing Data Handling	Listwise Deletion
Total Responses	348
Excluded Cases	74 (21.3%)

(Source: Field research, 2026)

Table 2 Item total reliability summary

Item	Corrected Item–Total Correlation	Cronbach's Alpha if Item Deleted
Classroom discussions help me understand Geography lessons better.	0.412	0.815
Visual aids such as videos, pictures, globes, and maps help me improve my learning.	0.579	0.787
The use of technological tools (computers, Smart boards) supports my learning effectively.	0.585	0.787
Having opportunities to ask questions helps me perform better in examinations.	0.666	0.775
Real-life examples make Geography lessons easier for me to understand.	0.498	0.799
Mental representations (short notes, diagrams, mind maps) help me remember lessons better.	0.545	0.793
Practical activities (map drawing, field trips, outdoor tasks) improve my Geography skills.	0.518	0.797
Group activities and collaborative learning help me improve my marks in Geography.	0.488	0.800

(Source: Field research, 2026)

FINDINGS

The results of this study are closely related to the pre stated research objectives and supported by descriptive statistics and inferential analysis. As indicated in the table 1, most frequently used strategies were mind maps and diagrams, with a mean of 4.28 (SD = 0.809), followed by real-world examples with a mean of 3.98 (SD = 0.958), fieldwork and map marking in practice with a mean of 3.76 (SD = .981), and audio-visual with a mean of 3.64 (SD =.985). In contrast, methods using ICT came out to be the least used, with a mean of 2.12(SD =.895), followed by group activities with a mean of 2.44 (SD = .644) a gap in digital and collaborative learning practices.

Table 3 Strategies used for geography teaching

	N	Minimum	Maximum	Mean	Std. Deviation
Use of Audio-Visual Aids (e.g., videos, pictures)	30	1	5	3.64	.985
Use of ICT Tools (e.g., computers, smart boards)	30	1	4	2.12	.895
Use of Real-World Examples	30	1	5	3.98	.958
Use of Mind Maps	30	2	5	4.28	.809
Use of Practical Activities (e.g., map marking, outdoor work, field trips)	30	1	5	3.76	.981
Group Activities / Collaborative Learning	30	1	4	2.44	.644
Valid N (listwise)	30				

As indicated in table 2, the students' perceptions regarding the above findings were also consistent: discussion-based learning received the highest rating (Mean = 4.20), indicating that this interactive teacher-student communication greatly enhances understanding.

The following in order were perceived positively: visual aids (Mean = 3.63) and technology-assisted teaching (Mean = 3.51), stating the imperative of visual and digital engagement. Inquiry-based learning (Mean = 3.34) and practical activities (Mean = 3.27) received a moderate score presumably because of inconsistent practices in schools. The lowest ratings were given to mental representation activities (Mean = 2.90), presumably because of only limited usage or less student involvement with these methods.

Table 4 Students' perceptions on geography teaching strategies

	N	Minimum	Maximum	Mean	Std. Deviation
We learn through discussions with the teacher.	274	2	5	4.20	.762
The teacher uses visual aids (videos, pictures, globes, etc.) during teaching.	274	1	5	3.63	1.155
The teacher uses technological tools (computers, Smart boards, etc.) during teaching.	274	2	5	3.51	.844
We learn by asking questions and finding answers.	274	2	5	3.34	.684
The teacher uses real-life examples in daily life situations to teach.	274	2	4	3.32	.574
We learn using mental representations (short notes, diagrams, mind maps, etc.).	274	2	4	2.90	.594
We learn through practical activities (e.g., drawing maps, outdoor classroom activities, field trips).	274	2	5	3.27	.613

We learn through group activities and collaborative learning.	274	3	4	3.41	.493
Valid N (listwise)	274				

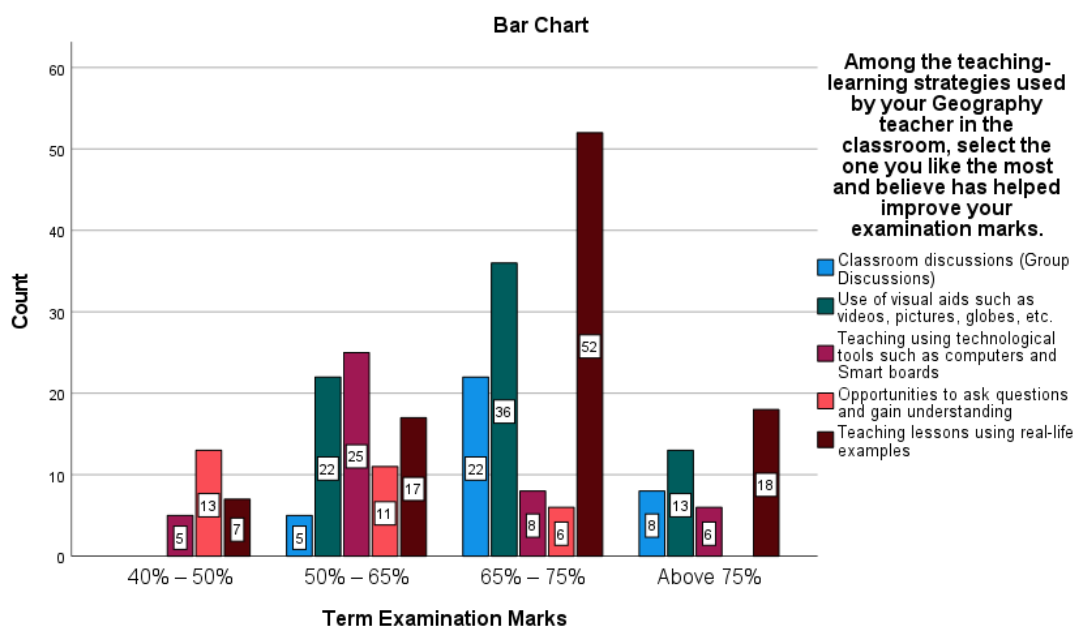


Figure.1 Term Examination Marks

As Indicated in figure 1, researcher use second term examination marks of the students which all types of government schools within the zone receive the standardized common examination paper.

Crosstabulation results showed that students who preferred visual learning media, such as videos, pictures, and globes ($n = 71$), had relatively higher examination marks; the majority of them scored within the bracket of 65–75% ($n = 36$) and above 75% ($n = 13$). In this case, it can be seen that visual learning makes abstract geographical concepts even more understandable and interesting, and this therefore influences good academic achievement. Similarly, the students who preferred classroom discussion ($n = 35$) also showed good performances, with most scoring between 65–75% ($n = 22$) and over 75% ($n = 8$). This shows that interactive and participatory learning encourages good comprehension and critical thinking.

It was also noted that technology-based learning played a significant role in the performance of the students. Of the 44 students who preferred the use of computers and smart boards technologically, a fair number scored within the range of 50–65% ($n = 25$) and between 65–75% ($n = 8$). Though in most schools, the integration of ICTs was minimal due to lack of infrastructure, when used, their advantages came to the fore. Digital simulations, satellite images, and virtual maps increased the students' spatial sense and participation by allowing them to visualize real-life geographical phenomena in a broader perspective.

The most striking feature to emerge from this analysis was the Real-Life Experience Method, whereby teachers used real-life examples and field-site contexts to explain geographical concepts. Although this strategy was selected by fewer students than some other methods, its qualitative and contextual significance was greater.

Table 5 Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	90.387 ^a	12	.000
Likelihood Ratio	87.890	12	.000
Linear-by-Linear Association	3.011	1	.083
N of Valid Cases	274		

(Source: Field research, 2026)

Chi-square of significance, $\chi^2 = 90.387$, $df = 12$, $p < 0.05$, points to a statistical relationship between teaching learning strategies and academic performance, meaning the nature of instructional strategies was the significant factor affecting the effectiveness of students' learning outcomes. The finding confirms the assumption that active, visual, and experiential learning, especially real-life experience teaching in Geography makes a more positive contribution to student achievement than passive or traditional teaching methods.

Further, supporting these findings, thematic analysis established that visual learning, collaborative discussions, real-life application, and the use of technological tools offered positive contributions toward students' engagement and performance.

Students showed a strong preference for visual learning tools such as videos, maps, and diagrams that could help them contextualize theoretical concepts into real-world applications. Respondent A (2025) nailed it: *"Watching videos and using maps during lessons made it easier to understand physical features and climate zones, which I could remember during exams."* Respondent D (2025) felt the same way. For her, visuals helped bridge the gap between the classroom and the real world specially when it came to things like landforms or weather. This supports the quantitative finding where the use of visual aids was the most popular and effective strategy. Constructivist theory suggests that learners internalize new knowledge more effectively when this can be envisioned and put into context-a process which appears particularly pertinent in the case of a subject like Geography concerned with spatial and environmental phenomena.

The real-life application of Geography proved to be very effective. The students felt that when the lessons could be related to something current in their lives, such as flooding or erosion, the course was more relevant and easier to remember. Respondent I (2025) elaborated, *"When the teacher uses examples from our own area-like floods or soil erosion-it makes the lesson meaningful."* On the other hand, Respondent J (2025) expressed, *"I remember lessons better when the teacher links them to something I have seen."* This supports the high teacher mean for using real-life examples, 3.98, which shows contextualization supports both engagement and attainment.

Teachers stated some challenges in implementing geography teaching learning strategies. "we don't receive enough facilities and resources to integrate ICT in teaching process." (Teacher A, 2025). "There are some barriers to implement group activities in the classrooms such as maximum number of students in the class, limited space and limited time period". (Teacher C, 2025). respondent B (2025) said, "we have only two smart boards, entire school teachers receive similar chance to get it, thus we receive less chance to enter it. There are computers in the lab, but majority broken, if we have the chance to use computers, smartboards etc., we can increase the effectiveness of the teaching learning process".

Bringing both sets of findings together, the study clearly illustrates that student-centered, interactive, and real word relevance strategies are most effective in bringing about an improvement in Geography performance. The combination of quantitative statistics and qualitative narratives shows that students perform better when exposed to such strategies and perceive these as more engaging and meaningful. At the same time, strategies with limited application, such as ICT-based and group learning, constitute unexploited opportunities to enhance pedagogy.

Quantitative and qualitative evidence combined support the holistic picture that effective Geography requires the active blending of visual engagement, technology, collaboration, inquiry, and real-world relevance in teaching. Teachers who balance these approaches tend to raise academic achievement and motivation in students.

DISCUSSION

The aim of this research was to study the effectiveness of teaching-learning strategies in enhancing academic achievements in Geography among junior secondary school students in the Kelaniya Education Zone. The discussion is presented in relation to the research objectives and is explained in the context of existing literature. The first objective was to identify the teaching learning strategies used in teaching geography. the results showed

that mind mapping, real life examples, and practical activities were the most common strategies employed. This reflects a move towards student-centric and activity-based learning. The same results were reflected in the studies conducted by Ebon and Gamutan, 2025. Its findings demonstrate that instructional practices, encouraging active participation, real world application, and social interaction significantly enhance student achievement. Second objective was to examine students' perceptions of the effectiveness of teacher strategies. The students showed a high preference for visual learning and discussion methods. This finding is in line with the constructivist learning theory, which states that learners construct their own knowledge through interaction and visualization. The findings are also in line with the social learning theory of Vygotsky. The third objective examined the relationship between teaching methods and academic achievement. The significant Chi-square value verifies that teaching methods influence examination results. The finding confirms the assumption that active, visual, and experiential learning makes a more positive contribution to student achievement than passive or traditional teaching methods. Clearly, the analyses undertaken point out that teaching-learning strategies like visual aids, classroom discussions, technology-based methods, especially real-life experience teaching in Geography, significantly explain the variation in term examination marks. Of the variables, Real-Life Experience Method is the pedagogical approach where in the abstract Geography theories are transformed into concrete and lived experiences. Hence, the process of relating classroom learning to the natural and human environments that learners encounter on a daily basis allows teachers to foster not only academic achievement but lifelong curiosity and appreciation for the discipline. On these grounds, Geography teachers are encouraged to take up more experiential, field-based, and contextual teaching practices-such as school trips, environmental projects, or community mapping activities-to enhance conceptual understanding and, in turn, examination performance.

CONCLUSION

The current study explored the effectiveness of strategies for geography teaching and learning on improving academic achievement for junior secondary students. Based on quantitative and qualitative findings, it can be established that a mix of interactive, student-centered teaching strategies enhances students' ability to grasp concepts, engage, and execute better in geography subjects. Interviews with students show that they appreciate teaching practices that allow them to explore, collaborate, and be creative. The students argued that the geography lessons would become more meaningful and relevant if teachers could relate them to real-world phenomena, present them using maps and multimedia, or lead field activities outside of the classroom. The key message from this study is that pedagogy lies at the very heart of achievement. In effective geography teaching, there has to be incorporation of traditional methods with those of more modern concepts in order to meet the different learning requirements of all students.

IMPLICATIONS AND RECOMMENDATIONS

The implications of this study are multifaceted: pedagogical, institutional, and policy-level. First, at a pedagogic level, the findings suggest that geography educators need to be more learner-centered in their approach to teaching. Teachers use a range of teaching methods which take into account the different learning styles of students: visual, auditory, and kinesthetic. This would call for the use of maps, diagrams, digital tools, and experiential learning through field visits. Professional development programs should focus on equipping teachers with updated and effective methods of instruction, including methods of integrating ICT, differentiation of instruction, and formative assessment techniques that enhance student participation and critical thinking. Secondly, the findings suggest curriculum reform and institutional support. It is in this regard that education administrators and curriculum developers must ensure that geography syllabi emphasize practical inquiries rather than rote learning. There is also a need to provide schools with projectors, maps, globes, and other digital materials to effectively teach geography. Institutions need to encourage collaborative learning spaces in which group projects and interdisciplinary activities are fostered.

The policies should also facilitate an enabling environment toward the infusion of technology into the geography curriculum, especially within GIS use and other digital mapping tools. Another implication is a strong teacher-student interaction supported by a positive learning environment that motivates students to actively participate in the learning process.



Recommendations

Curriculum Development: The curriculum should be developed to introduce project-based learning, case studies in the environment, and practical assignments that represent existing real-life geographical problems.

Examination Reforms: Questions analytical, critical, and application-based should replace the existing questions that require mere recall.

Student Motivation: The teacher should utilize different teaching methods, such as positive reinforcement, peer collaboration, and interactive platforms, to help students feel confident in and curious about geography.

The following recommendations, when implemented, would not only lead to an improvement in learning outcomes in geography but also an improvement in the overall levels of attainment in secondary education within Sri Lanka. It is now high time that educators, policymakers, and school administrators come together with an aim to narrow the gap between theoretical knowledge and practical understanding in geography education.

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