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Article

A Notifiable Gap on Teaching Geographical Map Work: Challenges and Opportunities from Teachers

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Abstract: Geography teaching in South Africa schools has evolved due to usage of digital devices and use of GPs. Though changes are visible, most of geography teachers in various schools use same methods that in some instances do not make learners understand the prescribed curriculum in the classroom. Such practices show lack of basics mastery of geographical maps by both teachers and learners. This study explores challenges, experiences and opportunities of teaching geographical Maps. Qualitative approach was applied to understand challenges and opportunities of teaching Mapwork. Data collection was administered through individual semi-structured interviews to explore teachers' practices, thereof when teaching map work. The study group consists of 8 geography teachers who were purposively selected as they taught mapwork in 2022-2023 academic year. Findings revealed that lack of theoretical basis such as analysis, interpretive of geographical features, Multilingualism teaching gap in geographical maps, innovative techniques and methodological-mathematical basics amount to challenges and experiences of geography teachers. The study recommends a geography learning communities, group teaching-strategy, learner-concepts advance and pair- to -pair labelled geography can bridge the gap of knowledge on teaching geographical Maps. Such initiatives can contribute to (SDG 4) on quality education in schools, further advance the geography field on development of spatial thinking and practical instructions in South African schools.

Keywords: Challenges, Geographical maps, Geography teachers, Teaching experiences and opportunities

1. Introduction

Geographical maps in secondary schools serves an important section for the whole subject as they prepare learners on how to use GPS, landscape, measure the distance from one place to another. Hence, learners in geography classroom are bound to understand the dynamics of using maps and locating sections such as schools, features around their place to have knowledge and contributes to the society. Though, geographical maps serve as an integral subject in society, teachers in various countries out to understand how to teach learners basics and make learners think spatial. However, it is not always an easy route for teachers teach and learners be able to understand geographical map work and this is evident as teachers encounter challenges, different experience and opportunities.

In countries such as Europe (Finland), scholars discovered challenges encountered by teachers on reading and interpretating of geographical process on maps. These is noted on teachers' inability to properly handle components of maps. Finnish National Board of Education (2015) emphasize that if learners are not motived to make application of map analysis and interpretation, their spatial cognition is likely to be compromised. Similarly, in Nigeria, mapwork has posed negative impact to geography teaching in secondary schools, weakened morale and enthusiasm of learners, thus lead to high rate of poor performance (Eze,2021). While South Africa scholars like Ramsaroop et al (2024) identified several challenges such as teacher pedagogical and content knowledge, time and ongoing professional development. These challenges include inadequate training on pedagogical knowledge which contribute to learners' acquirement on maps.

Closely related, research published by Berendsen, Hamerlinck, & Webster, (2018) proved that suitability of story maps in teaching and learning contribute positively and make learners to understand maps. Furthermore, analysis revealed that story maps were perceived as user-friendly and interactive in a classroom. However, lack of technological materials was identified as hindrance in schools, training and time as obstacle for success in teaching maps. These show a need to train preservice and in-service teachers on the use of story maps as a teaching and learning tool. However, it is very imperative that teachers improve not only in technical terms, but on how to control software, use it correctly and be effective in teaching process. In Namibia, researcher like Naxweka

and Wilmot (2019) show that map work teaching plays a significant role in developing spatial thinking to teachers in schools. Traditional and Innovative tools in geography teaching shows how most of teachers are not adaptable to change, face difficulties to theoretical and application on maps (Messina,2021). Hence, teaching of map work in Namibian country continuous to be a challenge year in schools, because of a gap identified on teachers specifically on this section (Larangeira & Van Der Merwe, 2016).

South African diagnostic reports continuously show how learners keep failing to interpret geographical concepts and processes on maps (DBE,2023). These reveal teachers' unpreparedness on the topic together with gap between content knowledge and strategies used in the classroom. If 53% of learners on map skills across the country are unable to understand, analyse and interpret concepts found on maps, automatically it shows teacher's unpreparedness. As noted, teachers' preparedness is a key determinant to success of teaching and learning in South Africa (Mkhasibe, Maphalala& Nzima, 2018). A study conducted Hsu, Tsai, and Chen (2018) on teaching topographic map skills and concepts using google Earth, shows that mapwork teaching by a single teacher poses various challenges in a classroom. On that note, Rodriguez-Medina (2020) concludes that training is an essential element for overcoming such challenges of teaching to allow learners understand and contribute to society.

This show importance of geography teaching in secondary curriculum to both international, and African countries (Delelu et al,2025). The teaching of this subject should always bring greatness in societal needs, not only for the industrialization. The South African Department of Basic Education has identified significance of map work as a tool on integration of content. However, its inclusion in national curriculum is not well captured by both teachers and learners (DBE, 2012). The national curriculum statement emphasizes geographical content knowledge and map work, unfortunately interpretation of content lies within a teacher and learner.

This paper seeks to advance knowledge on experiences and opportunities of geography teachers for teaching geographical Maps and contribute to sustainable development in education. To conduct this study, the researchers believe challenges and experiences of teaching mapwork can contribute to a better way to teach geographical maps and enable learners to use GPS on their digital platforms. 2. Materials and Methods

Materials and Methods should be described with sufficient details to allow others to replicate and build on published results. Please note that publication of your manuscript implicates that you must make all materials, data, computer code, and protocols associated with the publication available to readers. Please disclose at the submission stage any restrictions on the availability of materials or information. New methods and protocols should be described in detail while well-established methods can be briefly described and appropriately cited.

Research manuscripts reporting large datasets that are deposited in a publicly available database should specify where the data have been deposited and provide the relevant accession numbers. If the accession numbers have not yet been obtained at the time of submission, please state that they will be provided during review. They must be provided before publication.

Interventional studies involving animals or humans, and other studies require ethical approval must list the authority that provided approval and the corresponding ethical approval code.

Study objectives are as follows:

1. Explore teachers challenges and experiences when teaching geography map work.
2. Establish how these can be reduced and lead to opportunities for learners in geography education.

The present study seeks to contribute to ways in which teachers can use challenges and experiences of teaching mapwork, provide a better teaching and learning ways to allow learners understand the importance of maps. This study provides a background, literature, theoretical with intentions to understand the context. A unique contribution is to bridge a gap between theoretical content and Mapwork as backup by the discussion and findings of the study.

2. Reviewed Literature

Challenges teaching geographical mapwork.

Most of the explanations about teaching mapwork has not been advanced, especially when learners perform poorly in schools. The reviewed literature ranges from instructional materials -strategies, curriculum application, pedagogies, textbook, and classroom management (Dhakal,2019; Simonyi & Homoki, 2020; Alam, 2021). Closely related, some of the studies revealed evidence about the challenges and experiences that are not only for specific grade but from Primary to secondary schools. Studies (Kaya, 2018) have revealed the challenges of teaching geographical maps. For instance, in Turkey it was noted that some teachers' encounter conflict management, adolescent psychology and communication skills as some of challenges. Hence, they believe in-service training and teaching materials should be applied to encourage teachers have interactive geography lesson.

Dhakal (2020) in Nepal reveal the challenges such as non-availability instructional materials, teachers' laziness, lack of skills, financial and constraint of time, lack of support from authorities and geographical resource room. The study concluded that

instructional materials, provision of funds, supervision and improvisation of local materials can contribute positively to teaching of geographical maps.

In countries such as Vietnam and Ghana, Ethiopia (Baidoo-Anu et al,2019; Nguyen et al,2024 Delelu et al,2025), time is one of confronting challenge in field work as a method of teaching. Funding inadequacy also has been observed in all the stages as another obstacle in field work. Funds available for the programme, thus learners required to contribute to field work which in most cases learners cannot, thus eventually end up calling off the field experience.

The central question is: What are challenges of geography teachers on Map work teaching? To answer this question, we draw from Nguyen et al (2024) reports that geography teachers' understanding reflect components on spatial thinking, such as concepts, tools of representation, and reasoning. If such are not adhered to, it reflects ambiguous and unclear understandings. García-González et al (2023) believe inconsistent knowledge on the future teachers depend on level and structure of the country geographical literacy.

Amongst such, Ahiaku et al (2019) believe teaching mapwork is a challenge to teachers sampled, especially aspects that deals with calculations and geographic Information System (GIS). Factors, such as teachers' preparedness, inadequate teaching and learning materials were found to be contribution poor mapwork instruction. Adequate supply of relevant instruction materials, not only to improve learners' performance in mapwork, but to achieve geographical goal in school. These factors negatively affect the teaching of Map work.

Ramsaroop and Kwayi, (2024) further shows that in South African schools, theory, methodology, and mathematical basics contribute to both teachers' failure on mapwork. Map work teaching has never shown any improvement, and hinds characteristics good performance. This could emanate from poor teaching strategies that deprive learners from map interpretation and analysis leading to low achievement (Mukondeleli, 2018, Ockhuizen,2018). Despite all, South African teaching of Map work in geography is not well addressed.

The reports always show how teachers teach geographical concepts and processes without integration of map work (DBE, 2021-2024). Such teachers' practices contribute to core knowledge and skills leading to the decreased number of learners across schools left with options not to offer geography. In general, attainment of geographical interpretation on map work has been subjected to teachers' competency, resulting in poor teaching (Seedat,2019; Nhlumayo& Mofokeng,2023). Diagnostic report (DBE, 2024) show that most of learners failed to interpret on both topographic and orthophoto map which reveals knowledge gap. It can be concluded that lack of mapwork in schools need to be addressed.

3. Opportunities for Learners in Geography Education

Among the factors leading to challenges and experiences of teaching geographical maps, opportunities also merge in as explained by (Hazen & Alberts, 2020) Such value of interdisciplinary, creativity in advancing learning goals, efforts to enhance classroom interactions, and technological instructional materials improve teaching approach. Vojteková et al (2022) believe that for learners to understand map work, innovative approach to explanation and presentation should be prioritised. Similarly, Shakhislam et al (2025) shows that teaching of mapwork foster students' spatial thinking, creativity, and information literacy.

Various studies (Safaraliyeva et al,2019) reveal that teaching maps in countries such as Azerbaijan, Hungary and United Arab Emirates bring opportunities such as practical, multidisciplinary teaching, acquisition or practice of knowledge. Further, introduction of new technologies and use of atlases contribute positively to society. Scholars like Kidman and Chang (2023) conducted a study on Maps and geographical education to encourage learning. Results shows that teachers map work knowledge have utility beyond geographical classroom, from wayfinding to planning and military purposes. How can these challenges and negative experiences be reduced and lead to opportunities for learners in geography education? Studies from Schaab et al (2021) report that some of opportunities for learners on learning mapwork can bring potential awareness and reduce misinterpretations. Thereof, teaching geographical maps should be well emphasised to learners and teachers should be prepared to think spatially to bring a broad view on such content and its impact on society.

4. Framework

This study uses Kolb's (1984) analysis on experiential learning to explains how teachers provide a direct concrete experiment on learning event in a classroom. Additionally, allows learners to make application on map work knowledge to own lives and work context. This theoretical lens answer question such as "what are challenges of teachers when teaching mapwork in secondary schools? how these can be reduced and lead to opportunities for learners in geography? In this context, Kolb (1974) framework states that a geography teacher can teach maps and monitor learners' activities.

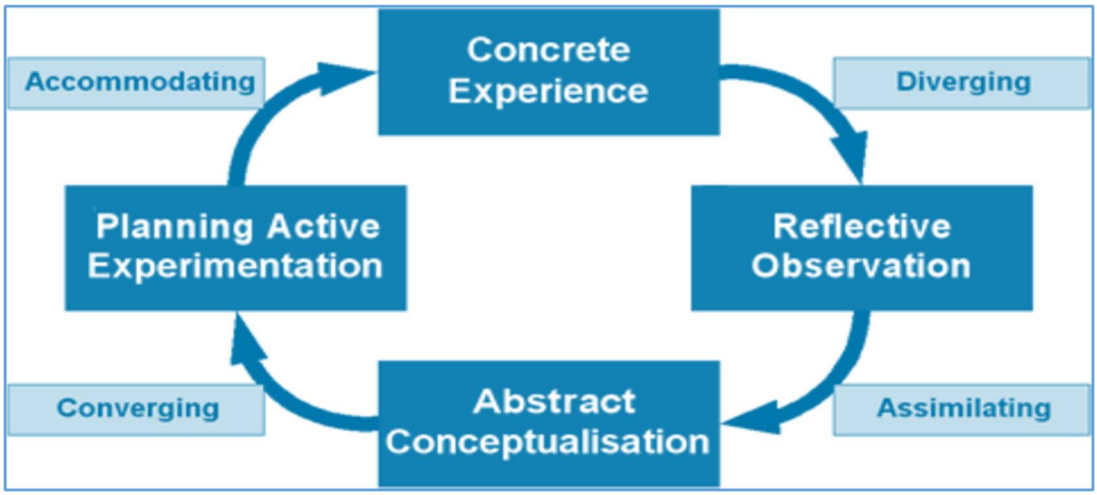

Fig. 1. Kolb (1974) experiential learning theory Framework.

Kolb (1974) views learning as a ground of experience. This shows a process how each stage integrates with another. Below are various learning styles for a geography teachers to consider teaching mapwork, reduce challenges and negative experiences to uplift opportunities.

Diverging style show how teachers should watch and construct ideas about a specific activity. As teachers are people with various perceptions towards teaching and learning in geographical maps. To effectively teach maps, teachers should have learning group prior to exact classroom (Stokhof et al,2020). Such can help to effectively familiarise with concepts and processes found on maps. Further understand how to read, analyse and interpret the geographical maps to allow learners understand how to use or operate in a classroom.

Assimilation style in geographical maps involves teachers using theoretical topics and teach learners how to interpret content on geographical map (Reshma,2023). Such initiatives have possibility of contributing to positive learning of geographical maps. In this context, teachers should teach learners how to apply their theoretical knowledge from content topics such as landforms, processes such waterfall, directions and agricultural content on map work. This style has possibility of learners understanding content better to apply such in their real life.

Converging style can be used by teachers to bring learners together and allow individuals to apply various ideas from the content of geography to maps. Allows learners to identify features and processes on the maps to make accountability to answers given. Moreover, Teachers use digital tools such as google earth and arch to give further explanation to groups converged. Group method can be used in teaching geographical maps to identify knowledge gap on learners. Such makes a teacher to showcase knowledge and enable learners to understand, reason and experience new ideas to provide practical applications.

Accommodating can be a style applied by teachers to focus on information analysis rather than their own experiences (Kolb, 1974). In geographical maps context, teachers can motivate learners to rely on their learning and excellence. Such consideration model how a teacher's knowledge and skills is presented. This framework can be applicable in classroom with ratio between 1: 40-50.

5. Research Methodology

This paper is grounded by qualitative study used to gather information about challenges, experiences and opportunities of teaching geographical maps guided by the interpretivism that bring a lens of contextual schools. A case study design has been used as teacher being cases to the current study. In note, studying teachers in their natural environment better understand social phenomena and interaction (Creswell & Clark, 2017; Mays & Pope, 2020). The population of this study consisted of teachers responsible for geography at secondary school. Four schools were selected based on purposive sampling out of ten community schools offering geography as an optional subject. The purposive sampling was applied using more than five years' experience in geography teaching and mapwork. Such criteria assisted the researchers to confirm the challenges and opportunities due to the lengthy year of expertise. The school context ranged between Quintile 1-3(As regraded to be "No fee" paying schools) such quintile for the study is in rural schools of Capricorn schools, Limpopo Province. Eight teachers who teach geography in sampled secondary schools were interviewed. Such sample size was influenced by insufficient instructional resources such as local maps, globe and digital materials to be used for geography classroom. The table shows breakdown of profile of participants:

Table 1. Demographic profile.

Participants	Qualifications	Gender	Teaching subjects	School quantile	Geography teaching experience	Responsible Grade
GMT1	BEd	Female	G & E	Q3	25	11-12
GMT2	BEd	Male	G	Q2	30	12
GMT3	BEd& BEdhons	Female	G&SS	Q3	5	9-10
GMT4	BEd &BEdhons	Male	G	Q2	12	11-12
GMT5	BSc(geology)	Female	G	Q1	5	10-12
GMT6	BEd	Male	G &H	Q2	28	11-12
GMT7	BEd &BEdhons	Female	G	Q2	18	10-12
GMT8	BEd	Male	G	Q2	12	12

Key: GMT=Geographical Mapwork Teacher, Bed- Bachelor of Education, Bed hons=Bachelor of Education honours, BSC=Bachelor of Science(geology),G=Geography, H=History, SS=Social Sciences and Q=Quantile

Qualitative study in a research paper allows in-depth exploration on individual, group interviews, discussions and document analysis (Khan, Khalique, & Saini, 2025). In this study, we chose individual semi-structured interview guideline to be applied as conversation tool participants. To contain confidential interaction about the challenges, experiences and opportunities of teaching geographical maps. Individual Semi-structured interviews lasted between 50-60 minutes, and all the data was audio recorded in the hard drive device. The primary mode of analysis was thematic which resulted into themes from the raw data. The collected data was transcribed and thematically analysed using six steps recommended by Braun &Clarke (2014). The themes were divided based on the challenges, experiences and opportunities of teaching geographical maps. The analysis was carried out in multiple readings and interpretation of the raw data. Participants were given codes such as GMT1-8 for confidentiality as agreed upon the collection of data. Additionally, themes were reviewed to confirm relationship to the coded extract and data set.

6. Ethical Considerations

To carry out this research study, permission was obtained from authorities in Tshwane University of Technology. The reference FCRE/PE/STD/202/10 was recorded as a project carried out and Limpopo Department of Education, Circuit and schools were sampled. Participants were informed of purpose, consent form to pledge and participate voluntarily. Participants of the study were four geography male teachers and four females which equal to Eight Participants.

7. Findings to Discussion

Three themes emanated from collected data on teaching geographical Maps: challenges and opportunities experienced by geography teachers. Themes such as Map concepts-processes interpretation and analysis, Multilingualism teaching gap and Benefit of teaching geographical maps.

8. Map Concepts-Processes Iinterpretation and Analysis

Teaching of Mapwork involves both interpretation and analysis on sketched maps. However, the inability for a teacher to demonstrate or make learners understand the reality presented on the map require skills and spatial reasoning. Such includes, scanning, locate a place or feature and interpret to reality. In this regard, GMT1 said: “The challenge I have is the issue and sometimes the direction of the river. I can say the direction of the river is not east, but when I must give a reason for the answer it becomes a problem.” In connection, GMT2: “It is difficult for us teachers to use topographic and orthophoto maps and this becomes very disappointing because a teacher fails to deliver the lesson intended to teach.”

From participants, teaching mapwork seem to be a struggle on accounting for answers identified from concepts, processes on the geographical map. Such inability shows lack of spatial thinking on understanding of location, pattern and spatial association. Additionally, scale comprehension on both topographic and orthophoto local South African maps. Furthermore, to provide correct evidence as teachers fail to give direction of river and its flow as demonstrated on verbatim quotations. To confirm the findings, concrete experience and abstract conceptualisation becomes applicable to allow teachers provide clear explanations rather than practical opportunities. Such allow introduction of some key concepts that will assist learners to understand the map interpretation and analysis. Introducing students to geographical concepts and process would make learners understanding map information and

organising it in a clear logical format. In relation to other studies in geography, empirical evidence by Dhakal (2020) reveal that some challenges are based on non-availability of materials, skill and strategies, textbook, time constraint and geography resource room. As time is included as one of challenges confronting the use of field work (Baidoo-Anu et al,2019; Nguyen et al,2024 Delelu et al,2025). As studies shows challenges in geography teaching across the countries, in South African schools' discipline-specific challenges such as local maps, globe, mathematical instruments contribute as instructional materials in geography teaching unlike in other discipline where textbooks are major challenges. Furthermore, pedagogical analysis such as use of teacher-centred method instead of learner-centred.

In such, evidence from practice in United state of America, believe teachers need to develop pedagogical knowledge for geography through professional development (Howell & Maddox,2024) Furthermore, teachers need to encourage learners to think beyond their sense of place, have a strong grasp of the cornerstones in geographic inquiry. Moreover, teachers to use PBGI strategies, promote geographic thinking for citizenship and models of exemplary. In relation to the above, Taiwan researchers Hsu et al (2018) believe training on guideline to topics in geography curriculum and cooperation by all stakeholders is required for teachers to be certain about map work skills. Kolb (1974) believe teachers need to apply diverging style as it requires teachers to investigate concrete experience from classroom and act on reflection.

Prior to converge in classroom, teach concepts and processes that relate to South African Maps (Schoeman, & Chidzungu,2025). Such challenges on teaching of the mapwork can be reduced through self-introspection, reflection and acquiment of teaching strategies to enable a collaborative teaching. In addition, with the proposed digital solutions like Google Earth and good Map. Such can be substituted through use of mobile and other digitals devices available in various school to escape power infrastructural issues in the sampled schools.

9. Multilingualism Teaching Gap in Geographical Maps

Teaching geographical foundation involves basics of the topic taught in senior band for learner's transition to FET (further education and training) band. Thereof, delivered content without basics creates a space for misunderstanding in a classroom. This includes proficiency of language as instruction in geography teaching.

GMT3": I think they do not have better foundation of maps from grade 9." GMT4: "The gap learners have is on the basics because some start geography in Grade 11 and they have missed the grade 10 work therefore, they struggle when coming to maps. In addition, teachers teach more of theory than practical, because if it was possible to visit an area where learners can observe the features used on the maps it would have been better."

Evidence reveals lack of foundation on map work content which create a gap on application of geographical content. Mapwork instruction differs from teaching practices in other subject areas such as language and commerce. In geography, practical or fieldwork and excursion becomes a requirement due to nature of the content. Closely related, less fieldwork or absence of excursion also contribute absent of practical skills on teaching and learning field as indicated by verbatim quotations. To confirm the findings, active experimentation makes teachers to use active teaching strategies such as small group teaching and whole class discussion. Such strategies allow learners to observe learning process, give input using native or home language to express how they feel and understand issues. Such practices as presented by Kolb accommodate learners' various views and promote learning. Hence, integrative perspective that combines experience, cognition, and behaviour.

Ramsaroop and Kwayi, (2024) shows that in South African schools, theoretical, methodological, and mathematical as factors that hinders teachers to interpret theory on maps. Similarly in Nigeria, Eze (2021) reveal that teachers and learners do not understand geography language hence, poor teaching of mapwork, inadequate preparation and explanation of points keep affecting the performance. Thereof, a geography teacher ought to be multiplied in schools using relevant instructional materials and learner-centered teaching strategy for improvement. Kane (2025) conclude that learners without background of geography basics should be equipped with content knowledge. Thereof, learners need knowledge to understand concepts and processes presented from local and international maps. Such foundation lies within learners on what they bring to class, how they respond to information and gain from teaching (Dyer, Hill & Wakington, 2019).

Indoor and outdoor language used on class activities as a medium of instruction should be English. However, geography learners find it difficult to understand graded and ungraded processes, antecedent and superimposed. This problem of language becomes more visible during the assessment of learners in a classroom.

GMT5: "The content gap and language barrier on learners is a problem because the learners do not understand the question which led them to answer questions based on the maps." GMT6: "Firstly, language barrier, secondly, I think is the environmental issues or background because you can give them something to practice at home but only few will do the work, and I sometimes repeat the lesson based on the question on maps. I feel these learners do not have the enthusiasm of learning."

Language seems to be a continuous challenge in geography teaching as it is presented on evidence revealed from verbatim quotation. The use of abstract conceptualization and reflective observation on learners understanding of concepts and application on maps. Thereof, environmental issues such as congested classes, furniture position in the classroom and association also contribute to learning progress. In turkey, Kumar and akkil (2020) conducted a study on activity-based instruction on map reading skill among elementary level of teacher trainees. The results show that implemented activity-based instruction was effective in improving map reading skills of teacher trainees. Hence, activity -based instruction should also be applied for learners to be eligible to understanding content in a language of instruction. Similarly, in South Africa, Du Plessis et al (2019) reveal that learning barriers such as language in geography teaching is one of hindrance to most teachers. Hence, it becomes imperatives for teachers to have strategy on how to understand language of teaching and possess to learners on geographical maps.

10. Opportunities of Teaching Geographical Maps

Instructional materials are at the centre of teaching and learning. Hence, it becomes imperative in geography teaching to such instructional pedagogies to serve as supportive system in the classroom. Map teaching requires numerous resource relevant to classroom context, such as globes, and models to accommodate learners found in the classroom. GMT7: "We only use south African maps to make learners understand the Mapwork." GMT8: "we only have maps and over-head projector to show learners different types of videos. Some resources such as over-head projector but the problem lies with the electrical plugs as we cannot connect the projector"

Evidence shows that most of geography teachers have maps to use, and in possession of projector but needs some appliances such as electrical plugs. Local maps can be used in geography by teachers to stimulate concentration and involve learners in the lesson. In turkey, scholars like Vojteková et al (2022) believe that for learners to understand, geographical maps can be used as effective way to explain and present any topic. Similarly, Shakhislam et al (2025) shows that teaching of mapwork foster students' spatial thinking, creativity, and information literacy. Reflective observation allows teachers to review and reflect on the experience such as the teaching strategies, instructional resources, content and assessment to contribute positively to geography teaching.

11. Conclusion

This study explored challenges and experiences of teachers on the teaching geographical maps. Establish how such can be reduced and lead to opportunities for learners in geography education. Numerous challenges, experiences and opportunities such as methodological, lack of activity-based instruction, spatial skills and in -service training were presented as evidence. Even though challenges and experience have been noted, opportunities such as fostering learners' spatial thinking, creativity, and information literacy are visible. This study has showed that challenges and experiences are always identified in various schools under teaching of geography. However, among these challenges, opportunities thrive within the learning of geography and advance to use of GPS and other types of created maps. Positive and negative experiences are notable such as instructional materials, time management, teacher spatial thinking and methodological concerns. On the other hand, lack of theoretical basis such as analysis, interpretive of geographical features, innovative techniques, methodological, and mathematical basics amount to experiences of geography teachers. We conclude that teacher spatial thinking, methodological approach and activity basis instruction be prioritised in the geography classroom.

Evidence from the findings shows that map concepts-processes interpretation and analysis on teachers shows a gap that proceed to learners in various school leading to poor grade or performance of learners. Providing geography learning communities and teacher -specialists in map work or teacher's showing excellency to lead such learning communities. Furthermore, to Multilingualism teaching gap in geographical maps, geography teachers should adopt a group teaching-strategy, learner-concepts advance and pair- to -pair labelled geography to bridge the gap of knowledge on teaching geographical Maps. Such initiatives can advance the learning opportunities and importance of teaching geography. Benefit of teaching geographical maps, teachers should always be about using digital devices to encourage learners' understanding of mapwork and explain the importance of learning maps and contribution to societies and career path. The uniqueness of this study is that it taps in both challenges, experiences and opportunities of teaching and learning geographical maps that can contribute to learners' intending to be in careers such as logistics, land survey, meteorologist, geologist, town planner etc. The result of this study shows that a failure for teachers to teach this section leading learners to misinterpret map work, perform poorly emanate from various challenges and experiences that requires urgent interventions of learning communities. The study was limited to geography teachers in FET phase due to concern always been highlighted in diagnostic report year to year. As such, further study can be conducted to explore the learner's perspective and experiences on learning mapwork.

12. Recommended Model

Learner-centred teaching (LCT) model for a notifiable gap on teaching geographical Map Work:

The learner-centred model consists of seven main parts, such as entry behaviour, awareness-creation, thinking process, valuing, action, evaluation and motivation.

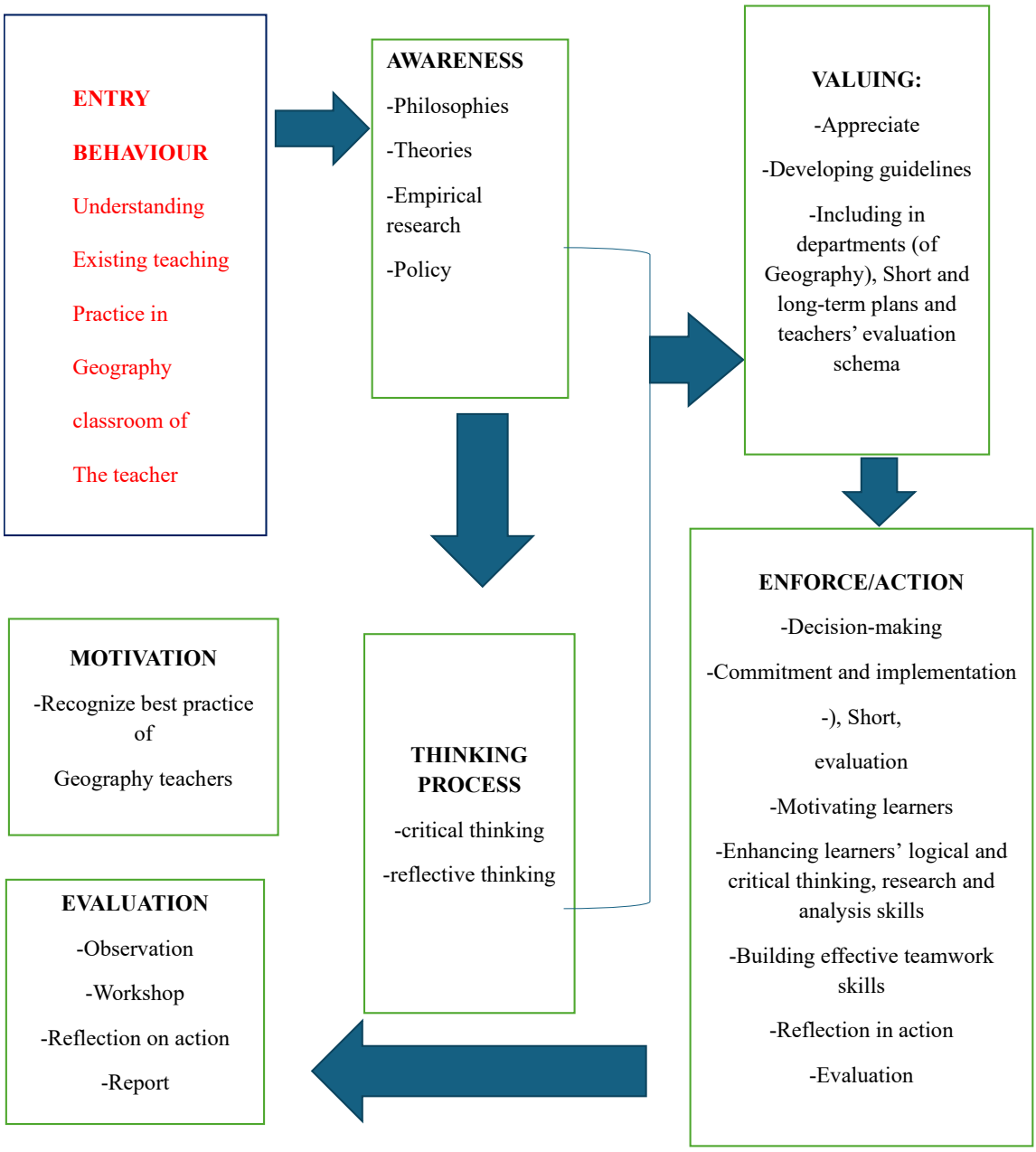

Fig. 1. Kolb's (1984) experiential learning theory framework applied to geography mapwork teaching.

The first stage of the framework reveals that the application of active learning on teaching maps should begin with a careful study of existing traditions, motivating forces, problems and demands of the present generation. In the Geography classroom, teachers need to have a clear view of the problems on the concepts and processes that are not understood by learners on teaching of maps. This should be applied to address notifiable gap on teaching map work and challenges.

13. Awareness-Creation

The stage of awareness is about knowledge and understanding of the philosophies from empirical research of active learning methods and techniques (small, whole class, discussion, cooperative and collaborative, problem-based learning) as they relate to the teaching and learning objectives, content, resources and facilities of learning before pre-service training that can be on practice.

Awareness-creation lays the foundation in the classroom for implementation of active learning in geography classroom. This entails that under this aspect; teachers should be well vested with knowledge and understanding map work content and methods to be able to lay foundation of basics to interpret on maps. This is where teachers should be aware of the language of english to address the gap on the secondary geography teaching.

14. Thinking Processes

In geography classroom, learner-centred teaching begins with one ‘s thinking, creative and critical thinking which are closely related to reflective thinking that serves as important for the teacher to value role of active learning. These processes are important for action/implementation as the main stage on the use of active learning techniques. The geography teachers have a chance to think through reflection of the classroom lesson to give the feedback based on the previous lesson. This makes teachers to have baseline knowledge which allows individual teachers to know how to begin a lesson, and aspects that may need some clarification. This entails that geography teachers need to reflect on the mathematical background that contribute as gap towards teaching of Maps.

15. Valuing

The role of active learning at this stage is for teachers to appreciate learners’ process of learning. This is where a favourable attitude towards active learning reaches its highest peak and motivates teachers to employ it. Valuing begins with inclusion of active learning in geography teaching, short- and long-term plans and teachers’ evaluation schema that need to be followed through the development of clear guidance. The teacher’s attitude of the content and lack of confidence on geography content needs to be addressed to reduce the gap experienced on teaching geographical maps.

16. Action

This section of the model includes tasks in active learning. Learner-centred teaching comes about because of the thinking processes and realization of activities. The following sub-headings support the stage of “action” which is decision-making, planning, motivation, commitment and implementation, reflection-in-action (examining own practice while in situation) and evaluation.

- Decision-making entails a prior preparation and choice of content to be presented, methods and techniques that are used in geography.
- Planning involves the preparation of content to be taught, active learning methods to be employed, and how to motivate learners in the classroom to keep individual learner on a task. The methods opted to build effective teamwork skills to enhance learners’ logical, critical thinking and analytical skills.
- Reflection-in-action helps to keep implementation of teaching techniques on the right track and to change the approaches when the needs arise.
- Evaluation in the geography classroom helps to check the progress and actual outcome of the lesson on teaching of the interpretation of geomorphological maps in Secondary geography schools.

17. Evaluation

The stage entails observation and feedback by geography teachers, workshops to identify strengths and weaknesses in the implementation of active learning to share experiences with learners of geography. The practice of teaching provides future direction in the use of active learning techniques. In geography teaching, regular progress reports on teaching maps may also help in the evaluation processes. Hence, a need for continuous professional learning communities to up-skill and re-skill these teachers to close the gap in secondary school geography teaching should be enforced.

18. Motivation

Teachers at this stage always get motivation from achievement of the teaching and learning outcomes in geography field. Exceptional and outstanding achievement on the teaching of maps keeps the classroom alive. Teachers can be motivated by how learners understand the maps. Furthermore, the model emphasis that pair-pair and group-teaching strategy can help reduce a notifiable gap on the teaching of geographical maps.

19. Advantages of Using the Proposed Framework

The proposed model has many advantages in the classroom context. The objective of the study which is more relevant to gap was to explore challenges and experiences when teaching geography map work. Establish how these can be reduced and lead to

opportunities for learners in geography education. The model will help geography teachers through their observation, workshop and training identified on the evaluation stage. This will make teachers to be well trained on the secondary geography content to eliminate a notifiable gap on the teaching maps. When this model is properly used, it would improve the teaching of maps. To lead to opportunities of learning maps, geography learning communities, group teaching-strategy, learner-concepts advance and pair- to -pair labelled geography can bridge the gap of knowledge on teaching geographical Maps.

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