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Editorial Comment

The Journal of Transformative Education and Development (JoTED) is a peer-reviewed journal focusing on policy issues and practices that promote transformative education. In this volume and issue, that is, Volume 1 (2), researchers and authors have contributed a wealth of high-quality and informative material. Volume 1(2) contains 10 articles that have gone through the peer review process at three levels by independent reviewers.

Stephen Atepor, Stephenson Akafabele Ayambire and Christopher Yarkwah investigate the factors that account for transferability of geometry concepts among High School students using the explanatory sequential mixed-method design. The results reveal inability to apply the concept of ratio and proportion aright and mistaking slant height for vertical height of a cone as factors accounting for students' inability to solving non-routine problems in solid geometry. The authors recommends that educators should design tasks that require students to manipulate ratios within diverse problem settings.

Charles Kwesi Gbungburi Wumbui, John Adukpo Godwin Yao Gaaku and Joana Emefa Adansi discuss the influence of World Englishes (WEs) in the Ghanaian classroom context using a mixed-method design. The findings show that English teachers understand the concept of Wes and have a positive attitude towards code-switching between target language and native language. The authors suggest professional development programmes to develop teachers' professional self-esteem and create awareness that standardisation and linguistic superiority of native speakers are ideological and political, not normal and natural.

Bella Apakah, Karim Ankrah Mohammed and Esther Kumea Ashun examine the professional background, training programmes for professional development, training needs and operational challenges of hotel workers using cross-sectional descriptive survey. The study reveals that most workers in the hotel sector do not have academic specialisation and no professional training before their engagement in the hostel industry. The authors recommend that the hoteliers and Ghana Tourism Authority should arrange and train employees with no expertise in hotel services to deliver well.

Christopher Yarkwah, Rosemary Twum and John Erebakere explore the electronic readiness of mathematics teachers towards the integration of ICT in the teaching of mathematics using descriptive research design. The findings reveals that the mathematics teachers have the perceived knowledge to support mathematics learning activities with electronic devices. The authors recommend that stakeholders of Ghanaian senior high schools ensure that mathematics teachers have technology-based in-service trainings that will continuously enrich their digital knowledge for effective pedagogical practices.

Charles Kwesi Gbungburi Wumbei, John Adukpo, Godwin Yao Gaaku and Joana Emefa Adansi explore the challenges of using English as a medium of instruction in Colleges of Education in Ghana using a mixed-method design. Findings reveal challenges of using English as a medium of instruction such as promoting excessive consumption of time during lessons, students participate less in class due to low level proficiency in English and failure of students to understand lectures and textbooks written in English. The authors recommend that language alternation pedagogy can increase English learning levels in Colleges of Education in Ghana.

Seth Oppong-Mensah, Daniel Abayaakadina Atuilik, Prince Osei-Wusu Adjei and Benedicta Konadu Antwi compare the expectations and the realities of north-south migration in Ghana using cross-sectional design. The results reveal that migrants move to their destination with high expectations of making a living. The study discovers that migrants sometimes have better socio-economic conditions before than after migration. The authors recommend planned programme and coordinated efforts to bridge development gap between north and south in order to reduce the north-south migration.

John Adukpo, Godwin Yao Gaaku and Charles Kwesi Gbungburi Wumbei examine the transitivity process types in the 2012 presidential Independence Anniversary speech delivered by John Evans Atta Mills. The analysis involves segmenting the speech into individual clauses and conducting a detailed clause-by-clause examination. The findings reveal four main process types: material processes, relational process, mental processes and verbal processes

represent. The study concludes that transitivity analysis reveals how speakers and writers encode their mental representation of the world in language and how they convey their experiences of the world around them.

Fred Alpha Adams and Madelein C. Fombad explore how Rogers' diffusion of innovation attributes of relative advantage, compatibility, complexity, triability and observability affect Information, Communication and Technology (ICT) adoption and use at the Accra Technical University library in Ghana, using a case study design. The findings reveal that the Accra Technical University library has a variety of ICTs, categorised into: ICT technologies and infrastructure, ICT-based software, ICT-based electronic resources, and ICT-based library services and establish that the Rogers adoption attributes affect ICT adoption and use at the Accra Technical University library. The authors recommend that, in terms of complexity, the library's management should ensure the deployment of ICTs that are user-friendly to facilitate acceptance.

Anthony Kwabena Yeboah, Joseph Awetori Yaro, Magya Kwasi Ali and Seth Oppong-Mensah examine the perceptions and experiences of farmers on the climate variability in northeastern Ghana, using a mixed-method design. The results show that most of the farmers are aware of the variation in the climate system, pointing out specific events such as increasing temperatures, reducing trend in rainfall and lengthy drought as the most common which cause low farm produce and crops rotting in barns or storage areas. Though the perceptions and experiences of farmers appear limited to their locale, the authors suggest considering it to design interventions to avert the incidence of food insecurity.

Charles Kwesi Gbungburi Wumbei, John Adukpo, Godwin Yao Gaaku and Joana Emefa Adansi discuss the effects of English as a medium of instruction in Dambai College of Education, using a mixed-method design. Findings reveal that students develop positive attitude towards the use of English as a medium of instruction in colleges of education and both tutors and their students recognise that English language enhances career opportunities of students and makes them globally accepted. The authors recommend that

language alternation pedagogy can increase English learning levels in Colleges of Education in Ghana.

The editorial team is grateful to all reviewers for the useful feedback they offered on the papers they reviewed and the professionalism they exhibited through the review process. To the Principal of Dambai College of Education, the team would like to say a big thank you for the continual financial and logistical support which has made the publication of JoTED possible.

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Solid Geometry Problems: Transferability Level of High School Students

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Abstract

The study focused on examining the factors that account for transferability of geometry concepts among High School students. To achieve this, the study employed an explanatory sequential mixed-method design with sample of 99 final year students who were selected through multistage sampling techniques from two high schools in two districts in the Upper East Region of Ghana. Solid Geometry Achievement Test (SGAT) and an Interview Guide were used as instruments for data collection. Data was analysed descriptively by means, standard deviations, frequency distribution tables and percentages, and inferentially by Kruskal Wallis Test (Ranks), Tukey's HSD Test as Post – Hoc and One – Way ANOVA. The results revealed inability to apply the concept of ratio and proportion aright, and Mistaking slant height for vertical height of a cone as factors accounting for students' inability to solving non-routine problems in solid geometry.

It was recommended that educators should: design tasks that require students to manipulate ratios within diverse problem settings, thereby enhancing their ability to transfer these concepts to novel, non-routine problems, provide explicit and comparative instruction on distinguishing between different dimensions in three-dimensional figures thereby helping students consolidate their understanding and promote the transfer of accurate dimensional reasoning to other solid geometry problems.

Keywords: *Geometry, Transferability, Routine Problems, Near Transfer, Far Transfer*

Introduction

The goal of education is to ensure that students can apply their acquired knowledge in diverse and unforeseen situations (Rebello, Cui, Bennett, Zollman & Ozimek, 2017). Transferability is fundamental, as it enables learners to retain and effectively utilise their education to solve new problems (Larsen, Endo, Yee, Do & Lo, 2022). Effective teaching methodologies must prepare students to apply their learning to both present and future challenges, ultimately advancing their ability to transfer knowledge into real-world situations (Roberts, Sharma, Britton & New, 2007). Successful transferability entails the retention of information and practical application of learned concepts. However, language challenges can greatly hinder students' ability to understand mathematical concepts, leading to repeated errors and misconceptions. Due to these language barriers, key mathematical ideas are often miscommunicated, disrupting comprehension and limiting transferability. Misunderstanding terminology or the structure of mathematical statements tends to result in repeated mistakes, which ultimately affects the student's ability to apply knowledge to non-routine problems.

Additionally, the incorrect use of language in describing mathematical concepts—such as confusing the meaning of dimensional terms in geometry—can create confusion that impedes higher-order cognitive processing (Mayer, 2002). Transferability is characterised by the ability to apply acquired knowledge in new contexts, either through near transfer (where knowledge is applied in similar contexts) or far transfer (where knowledge is applied in vastly different situations) (Mayer, 2002). A low or poor performance rate in solid geometry tasks has been attributed to challenges with knowledge transfer

(WASSCE 2011–2021). Chief Examiners' reports between 2011 and 2021 indicate that students struggle to solve solid geometry problems that require them to move beyond basic rote recall to address more complex, non-routine problems. As noted by Surya (2012), one key reason for low achievement is the insufficient opportunity for students to transfer their learning to new concepts, a pattern compounded by language barriers in comprehension.

Mathematics, particularly geometry, nurtures foundational skills and fosters logical reasoning, promoting problem-solving abilities across a range of disciplines such as construction, architecture, and engineering. The effective application of geometry is critical to real-world applications, aligning with the broader goals of mathematical literacy and problem-solving in Ghanaian society (Ministry of Education, 2020). The current curriculum empowers students to demonstrate creative thinking, logical analysis, and self-confidence, with an emphasis on critical thinking and problem-solving as essential competencies (Ministry of Education, 2020). For the Ghanaian educational system to meet this goal, students must progress beyond basic comprehension levels, ensuring that transferability is a part of their cognitive skill development. Low-level knowledge and insufficient transfer skills create barriers to achieving the national objectives of producing adept problem-solvers. Hence, it is crucial for mathematics teachers to refine their strategies and methodologies to ensure that all students engage actively with content, particularly in geometry, where higher order thinking skills such as deductive reasoning, analysis, and problem-solving must be fostered.

Central to this goal is transferability, which is the capacity to retain and apply learned concepts to new challenges (Larsen et al., 2022). This concept encompasses both near transfer, where knowledge is applied in similar contexts (i.e. with same characteristics), and far transfer, which involves using that knowledge in significantly different settings (Mayer, 2002). Effective and appropriate teaching methods should balance retention with practical application to improve the usefulness of education (Roberts et al., 2007). The subject of geometry not only supports the foundations of the logical and analytical thought processes but has numerous practical applications in daily activities for example in the construction of buildings, dams, and highways. This type of practical relevance is advocated in the Mathematics Common Core Program goals for Ghana which intend to grow mathematically literate

people who are proficient in problem solving, creativity, and analytical thinking (Ministry of Education, 2020). As such, improving the ease of these skills being transferred is critical for personal achievement, global competitiveness, and national achievement in cultivating proficient problem solvers.

This study adopts Bloom's Taxonomy to analyse students' skill level in resolving both routine and non-routine solid geometry problem. This model provides a comprehensive understanding of the cognitive development spanning from the recalling and understanding stages of thinking to analysing, evaluating, and creating (Maciejewski & Merchant, 2016; Harrison et al., 2017). In this regard, the study aims to identify factors affecting geometry knowledge transfer through this taxonomy with the intent of establishing efficient instructional designs that promote higher order thinking and problem solving (Boles et al., 2015; Hyder & Bhamani, 2016).

Statement of the problem

Orón and Lizasoain (2023) argued that in the context of mathematics education, "transferability of knowledge" is highly relevant. This suggests that for learners to function and handle fresh challenges, especially in mathematics, there are necessary pieces of information that must be learned. Therefore, the way students apply and/or transform their knowledge to novel situations or problems has a profound impact on their ability to resolve mathematical issues. If knowledge gained is not transferable beyond its original or very first context, its utility becomes restricted. (Agustin, Retnowati, Ng & Khar Toe, 2022).

Research on transferability have shown some instructional approaches that can facilitate transfer of knowledge (Sugiman et al., 2019; Sweller, 2020). For instance, Sugiman et al. (2019) conducted research on transferability, highlighting the significance of students' ability to transfer knowledge, a factor that could be bolstered by problem-based learning which is entirely goal free. With the performance of high school students in solid geometry being low continually and the chief examiner's report pointing to students' difficulty in application related questions in geometry, becomes a matter of importance to focus research on transferability in solid geometry (WASSCE 2011 - 2021).

More so, since the few related research conducted employed qualitative approach, the current study employed mixed-method approach to enable in-depth and rich data access to categorise Senior High school students'

transferability level in solving solid geometry problems, explore the issues accounting for students' transferability and discuss valuable insights and implications for mathematics teaching in the Bolgatanga Municipal and Nabdam District in the Upper East Region of Ghana, while contributing to the body of literature to enhance practice.

Research objectives

The study sought to:

1. Determine students' performance in solving Familiar, Near transfer and Far transfer problems in solid geometry.
2. Explore students' difficulties in transferring knowledge when solving solid geometry problems.

Research hypothesis

To achieve objective four: compare students' ability for solving familiar, Near-transfer and Far-transfer problems in solid geometry across course of study, one hypothesis was formulated as follows:

H₀: There is no significant difference in the ability of students to solve Familiar, Near-transfer and Far-transfer problems in solid geometry across course of study.

Literature Review

The revised Bloom's taxonomy

This study is underpinned by Revised Bloom's Taxonomy as it provides a systematic approach for evaluating and improving students' cognitive learning processes. Bloom's taxonomy was invented by Bloom in 1956 and then Anderson and Krathwohl revised it in 2001, categorizing cognitive skills into Remember, Understand, Apply, Analyse, Evaluate, and Create (Orey, 2010). It consists of both the basic skills of information recall and more advanced skills, such as critical thinking, evaluating, and solving problems creatively. The bloom's taxonomy has notable relevance in education because it facilitates deep learning for students beyond the rote memorization of content (Nkhoma et al., 2017). The implementation of Bloom's taxonomy has been extensive in curriculum development, teaching approaches, and evaluation methods. It assists teachers in curriculum development to create instructions that enable learners to achieve desired outcomes, appreciating the objectives and the knowledge to be absorbed (Retno, Arfatin & Nur, 2019). The incorporation of Bloom's taxonomy in assessments enables educators to evaluate students'

cognitive development more effectively. Studies indicate that students' ability to integrate information is enhanced, when tests are designed through the application of Blooms taxonomy, as compared to under the rote memorization model (Chandio, Pandhiani & Iqbal, 2016).

In specific fields of mathematics, for example in problem solving situations like solid geometry, The Revised Bloom's Taxonomy is of paramount importance. The students manipulate three-dimensional shapes, use geometric theorems, reason spatially, and solve multi-step problems in solid geometry. Alignment of assessments to Bloom's taxonomy levels allows educators to evaluate if students recall the formulas, understand the usages, analyse properties of shapes, evaluate strategies for approaching the problems, and create solutions to unique challenges.

Application of Bloom's Taxonomy in mathematics education has been documented by several studies. For example, a study on a high school mathematics curriculum implemented Bloom's taxonomy and discovered that structuring lessons by cognitive hierarchies vastly contributed to students' problem-solving engagement (Retno et al., 2019). Also, research on flipped mathematics classrooms by Rothe et al. (2022) studied the levels at which learners process learning materials, and it was noted that deeper processing tasks, including analysis and evaluation, fostered better understanding of concepts.

In active learning combined with mathematics outreach, one study highlighted that students who participated in problem-solving tasks aligned with the higher order thinking levels of Bloom's taxonomy outperformed their peers in reasoning and working through problems (Karaali, 2011). Likewise, Puig et al. (2020) incorporated Bloom's taxonomy to evaluate a gamified pedagogical framework for teaching geometry to learners aged 10 – 13. It was revealed that setting the learning goals within the framework of the taxonomy improved students' geometric reasoning skills and motivated them to actively participate in the lessons.

More evidence on the application of Bloom's taxonomy is evidenced in the work of Saritaş (2021), who evaluated a math mobile application and analysed its learning outcomes using Bloom's taxonomy as a classification framework. The applications aimed at comprehension and application levels were useful, but the analysis and evaluation portions of higher order thinking skills could

greatly enhance the student's mathematical thinking, as was determined in the study. Similarly, Tüker's (2013) research on near and far transfer in mathematics learning showed that teaching designed following Bloom's principles aided students in transferring knowledge to various contexts within problem solving.

In light of these findings, this study applies Bloom's taxonomy to evaluate students' problem-solving skills in solid geometry. This taxonomy was used to analyse the level of movement between mere rote remembering of geometric concepts and active advanced reasoning and problem solving in students. The application of Bloom's taxonomy will enable a more comprehensive analysis of learners' mental growth and how teaching methods need to change in order to improve instructional outcomes in learning mathematics.

Conceptual Review

Solid geometry

Sánchez et al. (2017) describe solid geometry as one of the core branches of mathematics with significant relevance to engineering, computer science, and physics. Unfortunately, conceptualizing three-dimensional figures is a problem that many students face in their bid to understand geometry resulting in a lack of problem-solving skills (Numan & Hasan, 2017). Robertson and Graven (2019) and Larbi (2021) studies reveal that students are not able to visualize the transformation of geometric objects which is very vital for solid geometry. Another equally important, but often neglected part, is the ability to integrate the concepts of spatial relationships. Many learners are able to perform in solid geometry related task through rote learning rather than understanding the underlying principles and structures due to a weak cognitive foundation formed in their early formative years in education. The steadily growing body of research and teaching practice has sought to address these geometric thinking challenges through several strategies.

To respond to difficulties learners face, Van Hiele's Theory of Geometric Thinking offers a different instructional approach. The model developed by Van Hiele subdivides geometric reasoning into a series of ordered levels, aiming to clearly determine how to scaffold sequential instruction (Sánchez et al., 2017). The theory posits that the student moves through five stages of geometric comprehension: visualization, analysis, abstraction, deduction, and rigor (Van Hiele, 1986). The most basic step of understanding geometry

involves recognizing geometric shapes: pupils see and label a square or triangle. In the analysis stage, they have not yet comprehended relationships, but they are identifying properties of the figures. The abstraction level includes identifying relationships among properties and starting to grasp formal definitions. By the deduction level, students have acquired logical reasoning skills and are able to formulate formal proofs. Finally, at the rigor level, learners move into working with axiomatic systems and analyse geometrical concepts formally (Fuys, Geddes & Tischler, 1988).

Research shows that learners taught using the Van Hiele model seem to possess superior geometric reasoning and problem-solving skills compared to their peers taught with traditional methods (Mamiala, Mji & Simelane-Mnisi, 2021). For instance, Clements and Battista (1992) found that students who learned through the Van Hiele model framework showed greater improvement in the comprehension of geometric relations. The researchers observed that students developed better understanding of geometric properties when they were provided with structured activities that guided them through the levels of Van Hiele geometric model. A similar study conducted by Usiskin (1982) on secondary school students revealed that students who were able to reach the abstraction level at least did lateral problem-solving on complex geometrical shapes with a higher rate of success. This indicates that there is need for better instructional strategies which aim to advance students beyond simple fact learning to deeper analytical reasoning.

As far as solid geometry is concerned, Van Hiele's model systematically outlines the developmental stages of students from mere identification of three-dimensional shapes to sophisticated reasoning about spatial relations. As research suggests, many students tend to be stuck at the visualization stage, where they are unable to move towards the more advanced analytical and abstract levels needed to solve geometric problems efficiently (Burger & Shaughnessy, 1986). This gap can be closed through teaching methodologies based on Van Hiele's theory. For example, Ndlovu and Brijlall (2019) carried out an intervention that was based on Van Hiele's levels of geometric thinking, it included hands-on activities, dynamic geometry software, and guided discussions. Their results demonstrated that students who actively participated in these structured learning activities manipulated and reasoned with three-dimensional objects far better than those who did not.

Transferability level in solving solid geometry problems

Extending the application of mathematical skills beyond the classroom remains a major educational challenge. Students often have great difficulty transferring what they learn in class to new and different situations outside of school (Brophy et al., 2008). This particular problem stems from the lack of conceptual understanding and rote learning techniques that most students have experienced. Students approach problem-solving activities with a memorization mentality rather than reasoning processes. As a result, most students get stuck on novel problems that are presented outside the boundaries of standard textbook examples (Rittle-Johnson & Schneider, 2015).

Transferability is divided into ‘near transfer’, which refers to use in similar situations, and ‘far transfer’, which is use in completely new contexts (Nakakoji & Wilson, 2020). Near transfer takes place when students use learned principles on problems or tasks that are slightly different but still fundamentally the same. For example, applying the formula for calculating the surface area of a square to calculate the surface area of a cube is an example of near transfer. On the other hand, far transfer refers to applying a set of problem-solving strategies in a new, more sophisticated and novel context like using solid geometry to create or design an engineering model (Barnett & Ceci, 2002). Research indicates that traditional instructional practices in mathematics mostly advance near transfer or surface application of basic or fundamental concepts devoid of essential problem-solving skill necessary for application in more sophisticated, real-life contexts (Agustin et al., 2022). This challenge reveals that there is a lack of instructional methods that encourage far transfer.

Research reveals students participating in problem-solving tasks that require creative thinking show higher adaptability and advanced reasoning compared to those disciplined in routine exercises (Kubsch et al., 2020). Non-routine problems require students to engage in innovative thinking, logic, and decision-making, all of which aid in skill development. For example, Star and Rittle-Johnson (2008) note that students encouraged to use multiple methods to achieve a solution in mathematics were more adept at problem-solving in new situations as well as transferring their knowledge effectively. Likewise, Hegarty et al. (2018) highlight spatial reasoning as an important factor of transferability, especially in solid geometry, where visualization is critical in three-dimensional relationships. Their study discovered that students who

engaged in mentally manipulating geometric shapes could better solve problems requiring far transfer.

Empirical findings support the need for educators to implement instructional strategies aimed at fostering enhanced transfer of knowledge. Learning is most effective when students assimilate new knowledge into their existing frameworks which strengthens their problem-solving abilities across various situations (Polya as cited in Siniguian, 2017). Polya's steps of problem-solving: understanding the problem, devising a plan, executing the plan, and reviewing the solution has been recognized as a guideline for sustaining both near and far transferability in mathematics teaching (Schoenfeld, 1992). This model encourages students to not only think deeply about the problems they are presented with but also reflect on the processes they employed in arriving at the solutions. Thus, enabling them to design efficient strategies for transferability.

In a bid to strengthen transferability in solid geometry, researchers recommend teaching through real-world contexts, dynamic geometry software, and inquiry-based learning (Chazan, 1993). Inquiry-based learning entails guiding students to actively engage with geometric concepts rather than passively receiving information, allowing learners to construct their own understanding. As direct instruction is often less effective, active approaches designed for students at any academic level tend to ameliorate learners' retention rates along with applied problem solving (Kwon et al., 2019).

Additionally, solid geometry problem-solving competencies are enhanced through the development of spatial reasoning within technology-inclusive environments. Interactive tools such as GeoGebra and Cabri 3D enable students to visualize and manipulate three-dimensional figures which enhance their information retention and application to real-world scenarios (Laborde, 2005). According to Olkun (2003), students who used dynamic geometry software as opposed to static textbook diagrams performed significantly better on spatial reasoning tasks. This indicates that the use of technology in teaching solid geometry may enhance practical problem-solving skills.

Moreover, integrating real-life experiences into teaching geometry helps in far transferability because students appreciate the value of mathematical concepts outside the classroom. For instance, Lehrer and Schauble's (2012) research shows that students who work on design-based projects like model

architecture or engineering geometry analysis have a better understanding of solid geometry and are more likely to use that knowledge in new, different contexts. These findings support the hypothesis that authenticates that problem-solving tasks enhance the ability of students to transfer skills to other disciplines.

Thus, this study looks at how solid geometry teaching can be designed to encourage both near and far transferability of problem-solving skills. This study seeks to determine what teaching methods, through inquiry-based learning and the use of technology, enable students to acquire long lasting geometric knowledge and effectively use it outside the classroom. Determining the effects of various teaching strategies on transferability will greatly contribute to the improvement of mathematics education and the development of the students' abilities to face real-life problems.

Students' difficulty in solving geometry problems

Mathematics, particularly geometry, pose a unique challenge for students because of the abstract thinking skills required (Adolphus, 2011). While arithmetic primarily focuses on scratching the surface of numbers, at a more advanced level geometry interpretation necessitates visualization, spatial reasoning as well as manipulation and logic. Such requirements make the learnability of geometry difficult for a large number of learners, which results in inadequate problem-solving skills and abstraction applications. This problem is a resultant of a constellation of factors; restricted spatial reasoning skill sets, ineffective problem-solving skills and poor confidence in logical reasoning (Purba et al., 2017). Lack of ability to visualize elaborate 3D figures and their interrelations makes solid geometry concepts exceedingly difficult to understand for learners. Compounding these issues is the student's tendency to employ procedural algorithms devoid of contextual mastery based on fundamental concepts which leads to inadequate skill application.

Rote learning paradigms found in some classrooms is the single most important reason a learner has difficulty grasping concepts related to solid geometry. In the context of the Geometry, Kiarsi and Ebrahimi (2021) strongly criticize teaching strategies based on memorization of procedures accentuating that it does not aid the development of true understanding. Such strategies, rather, foster the conditioning of students for repetitive practice devoid of the reasoning needed to approach non-familiar problems. This creates problems

when attempting to apply geometry in practical contexts like engineering, architecture, or design. For example, a learner might calculate a volume of a cylinder yet be unable to estimate how much material he has to construct the said cylindrical water tank. Such a gap demonstrates the need for teaching methodologies that foster advanced learning, deep level of understanding, problem solving skills, and greater competence in learners.

Research indicates that learners grasp geometric relationships better when they are shown visual and kinesthetic aids (Rafi & Retnawati, 2018). Moreover, visual processing plays a critical bridge role in geometry as a discipline. The handling of the three-dimensional models, whether physically or digitally, greatly improves students' intuition and spatial awareness with regards to various geometric properties. Dynamic geometry software, including GeoGebra and Cabri 3D, has been proven to enhance learners' visualization and exploration of geometric relationships far better than static methods (Jupri & Drijvers, 2016). The software enables learners to interact with the objects that they are studying by changing shapes, watching transformations, and internalizing basic geometric concepts. With the integration of technology, geometry instruction can be made more advanced, interesting and effective which promotes better student understanding and retention of concepts taught in solid geometry.

Lastly, self-efficacy coupled with problem solving trust is another notable reason why students reach their mathematical goals. It has been revealed that students who have confidence and trust in their academic achievements tend to interact with complex problems and strive to succeed even when faced with challenges in the attempts to solve the problems themselves (Skaalvik, Federici, & Klassen, 2015). On the other hand, low self-efficacy students tend to opt for easier, less challenging problems, which causes a continuous cycle of underachieving and disappointment. In geometry, where multi-step strategies and the integration of several concepts are frequently required, self-assurance plays a defining role in a student's problem-solving ability. Self-doubt can lead to the ineffective resolution of a problem and too soon result in repeated attempts that achieve no fruitful outcome.

To solve the problem, teachers should work on their pedagogy to raise student confidence levels and positively impact self-attitudes towards problem-solving. Students can develop a growth mindset alongside resilience in mathematics through inquiry-based learning and collaborative problem-

solving activities (Kwon et al., 2019). In the inquiry-based learning model, students are provided with geometric concepts to explore through methods of guided discovery, which encourages self-critical thinking as well as self-strategy development. This differs from traditional telling instruction, where students are given the information, and they passively receive without engaging. Students are provided with the opportunity to explore, make mistakes, and refine their reasoning, enabling a deeper understanding through inquiry-based learning which promotes confident reasoning in geometry.

Students become further engaged when applying their knowledge through real-world scenarios. Lehrer and Schauble (2012) highlight the importance of students authentically practicing geometric concepts by equipping them with real-world problem-solving skills. For instance, commanding students to undertake architecture-based projects like floor plan design or constructing three-dimensional models aids learners in grasping the relevance of solid geometry beyond textbooks. Likewise, students applying mathematical reasoning through engineering-based challenges, such as calculating the load-sustaining capacity of structures, prove to aid students meaningfully and expose them to rich reasoning opportunities. Such practices aim to help learners appreciate geometry not as an abstract discipline but rather as a practical tool to solve real-life problems.

To sum up, the current study investigates the ways of improving instructional practices toward learners achieving better learning outcomes in understanding and developing confidence in solving solid geometry. Moving from a culture of rote learning toward stressing vertical and interactive engagement with visual learning tools, inquiry-based learning, and real-world applications blends together to increase students' spatial awareness and problem-solving abilities. Shaping students' self-efficacy takes a considerable share of mathematics spaces, as students' preparedness to approach challenging problems relies significantly on enduring self-beliefs developed and cultivated. Through employing the strategies provided, educators have the tools needed to construct an enduring understanding of solid geometry as well as systems thinking skills that transcend disciplines and contexts.

Methods

Research design and population

The study utilised a mixed-method approach to provide answers to the factors influencing transferability of geometry concepts among SHS students.

From a population of 1,024 final year high school students in two schools, a sample of 99 was conveniently selected for the quantitative data. Convenient sampling was used because of constraint of time, and it allowed to collect data from readily available participants. To obtain qualitative data on students' transferability levels in (far and near transferability) solving solid geometry problems, thirteen (13) students out of ninety-nine (99) students were selected for individual interview by the saturation theory. Students were then notified prior to the interview that their information would be kept private and used solely for academic purposes.

Instrument

In this study, a Solid Geometry Achievement test (SGAT) was adopted with two separate essay type solid geometry problems from WASSCE past questions (2014-2019) and a third problem developed by experts based on the Core mathematics teaching syllabus (SHS 1 – 3). The instrument had 3 sections: *Section A: (Familiar Problem)* - one essay type problem with three sub-items. The researcher ensured that the item was solved in class with the teacher since the problem and its solution were inspected accordingly. The rationale for lifting the 'familiar' problem was to find out if candidates could solve problems they had seen and solved in class within few weeks. *Section B: (Near Transfer Problem)* - one essay type problem with two sub-items. The item was lifted from the WASSCE past question. Though very similar to the Familiar Problem, the researcher did not see it in the notes or exercise books of students. It was based on the rationale that if students understood what they were taught in class, they were able to solve the Near Transfer Problem with little or no difficulty. Students were also expected to apply knowledge gained from class to solve closely related problems, otherwise referred to by the researcher as Near Transfer Problem. *Section C: (Far Transfer Problem)*- one composite non-routine problem developed by a mathematics education and assessment expert based on the core mathematics teaching syllabus for SHS 1 – 3. The problem was obviously out of the usual kind of problem students have seen. The item was aimed at measuring higher order learning skills such as

application, synthesis, and analysis. Students were expected to think critically and apply a number of previously learnt concepts in order to solve the item in this section.

Reliability and validity

To evaluate the reliability of the measuring scale in this study, a test-retest analysis was performed on the test items. Test-retest reliability examines the consistency of measurements of the same construct administered to the same sample at different times (Drost, 2011). The test items were given to students in a different school, and after two weeks, the same test items were administered again to the same students. The reliability coefficient was 0.72, indicating that the internal consistency of the items in the instrument was good and reliable. The content validity was ensured by examining representativeness of each item concerning the construct being measured. The face validity of the test items was also assessed to ensure that the items appeared to measure the intended construct.

To eliminate research bias and increase participant comfort during interviews, the researcher enlisted a neutral professional, trained in interview techniques (Cohen, 2007). Consistent wording and context for interview questions were maintained for all respondents to ensure reliability. Dependability was addressed by providing participants with the transcribed interview data to verify the accuracy and fairness of the interpretation (Anfara et al., cited in Cohen, Manion & Morrison, 2007). By implementing these procedures, the study aimed to establish the reliability and validity of the measuring scale, thereby enhancing the research's credibility.

Ethical consideration

Consent and clearance letters from the School of Science, Mathematics, and Technology Education was used for permission from the high schools. Before beginning the data gathering process, informed consent was obtained from the participants. They were made aware of the objective of the study and offered the option of performing or declining. Participants' privacy and identities were protected (Creswell, 2014) and assured of confidentiality.

Data collection procedure

Data was collected in this wise: a Solid Geometry Achievement test (SGAT) was administered to the participants in the two schools selected for the study.

The test lasted for one hour, thirty minutes. The items were then collected and scored out of 100. After scoring the items, thirteen students were interviewed to ascertain their challenges or otherwise what inform their way of answering the items.

Data analysis procedure

Data collected was analysed descriptively for research objective one and two by means, standard deviations, tables, frequencies and percentages. While research objective three was analysed inferentially by Kruskal Wallis Test (Ranks) and Tukey's HSD Test as Post – Hoc since the mean difference among the Familiar, Near Transfer and Far Transfer problem across course of study was significant at 5% alpha value. Since the normality assumption was violated, the non-parametric equivalent of One – Way ANOVA, Kruskal Wallis Test (Ranks) was employed to test the null hypothesis at 5% alpha level.

Results and Discussions

Demographic characteristics of respondents

The sample, comprising of 99 students drawn from two schools and three courses are represented by Table 1.

Table 1: Demographic distribution of respondents

Variable	Category	N	%
Course of Study	Science	30	30.3
	General Arts	59	59.6
	Business	10	10.1
Sex	Female	83	83.8
	Male	16	16.2

Source: Field Data (2024)

Table 1 shows that out of 99 respondents, female accounts for 83. In terms of programme of study, about 60% read general arts while 30% read science. The result here implies that most SHS students do not read science, and this is likely to affect government drives for technical education.

Research Question One

What is the ability of students in solving Familiar, Near transfer and Far transfer problems in solid geometry?

The first research question sought to find out final year students' ability for solving problems they have seen and solved before (familiar problems); those that are very much similar to the problems they have solved before (Near Transfer) and those problems that are non-routine or unfamiliar (far transfer problems).

Table 2: Students' ability for solving different problem types

Problem Type	N	Mean	SD
Familiar	99	15.27	2.71
Near transfer	99	11.94	2.95
Far transfer	99	8.43	2.27

Source: Field Data (2024)

The Table 2 illustrates the mean scores, denoting their cognitive abilities on each of familiar, Near transfer and far transfer problems. Clearly from Table 2, it is seen that, the percentage scores of the final year students depict a woeful performance. On the average, students scored approximately 15% on the problem which was solved in class. Considering the fact that the familiar problem was already seen by students few weeks before the data collection, it shows that students underperformed in solid geometry. This, not only confirm the fact that students struggle with solid geometry problems but perform abysmally when they attempt such problems. The woeful performance on familiar solid geometry problem supports the chief examiner's comment on Ghanaian students' weaknesses in solving solid geometry.

Again, with Table 2, a mean score of 12% on Near Transfer problems which were similar problems to those solved in class, was far below expectation. 12% simply suggest that students could not transfer knowledge acquired to similar problems solved. This depicts a worrying situation. If students are unable to transfer knowledge to solve problems that are very similar to the one's they

had seen and discussed, it simply suggest that their conceptual understanding of solid geometry is hampered. The weakness exhibited in solving the Near Transfer Problem clearly imply that students would not be able to perform in the Far Transfer Problem since the Far Transfer Problems require more complex thinking skills. The 8% average performance on the far Transfer Problems further heightens the fact that students are not able to transfer knowledge to solve non-routine problems in geometry. Aside the fact that students underperformed on all Problem types in solid geometry, the mean values in Table 3 suggests that students' ability to solve solid geometry problems decline as problems encountered become less familiar.

The results revealed that the perc''ntag' scores of the final year students on Familiar, near transfer, far transfer and non-routine problems in solid geometry achievement test depict a woeful performance. Students could not solve problems that they are familiar with and was solved in class before, scoring approximately 15% on average. This study not only confirms the fact that students struggle with solid geometry problems but perform abysmally when they attempt such problems. The findings resonate with Agustin, and Retnowati, (2022), whose research revealed Near transfer and Far transfer of knowledge as one of the most pressing issues in learning solid geometry and mathematics in general. This confirms that students have difficulties in learning solid geometry and transferring knowledge to solve problems which are similar to what they already have in a different context. Similarly, the finding of Purba, Sinaga, Mukhtar and Surya, (2017), indicated that Senior High School students face a lot of challenges and continue to struggle with solving solid geometry problems.

Research Question Two

What are the difficulties of students when solving solid geometry problems?

This question sought to identify the difficulties students encounter when solving solid geometry problems. Thirteen (13) students who demonstrated appreciable knowledge through their presentations but could not successfully solve solid geometry problems were interviewed to ascertain the specific difficulties confronting students. The problems that dominated were presented in themes as follows:

Inability to apply the concept of ratio

Both the Familiar and Near Transfer problems required the application of the concept of ratio in order for students to make any headway. Although 22 (22%) of the respondents were clueless regarding all three solid geometry problems, majority who attempted even the familiar problem were not successful simply because they could not apply the initial concept of ratio to determine the height of the cones that were needed to solve subsequent problems. For instance, although K-036 demonstrated evidence of understanding the concepts/problem posed under all three problem types, he could not arrive at the solutions due to an error in the application of proportion.

K-036

$$\frac{AB}{CD} = \frac{BE}{BD} \quad \frac{14}{10} = \frac{20}{x} \quad M_0 \quad \text{Ratio Inappropriate}$$

$$14 \times 20 = 10(20 + x)$$

$$280 = 200 + 10x$$

$$280 - 200 = 10x$$

$$\frac{80}{10} = \frac{10x}{10}$$

$$x = 8 \text{ cm} \quad \therefore 20 + 8 = 28 \text{ cm} \quad A_0$$

\Rightarrow The height of the original cone is 28 cm. A_0

Wrong Height
Wrong Volume

① Volume of the original cone = $\frac{1}{3} \pi r^2 h \quad M_1$

$$= \frac{1}{3} \times \frac{22}{7} \times 14^2 \times 28$$

$$= \frac{1}{3} \times \frac{22}{7} \times 196 \times 28$$

$$= 22 \times 28 \times 28$$

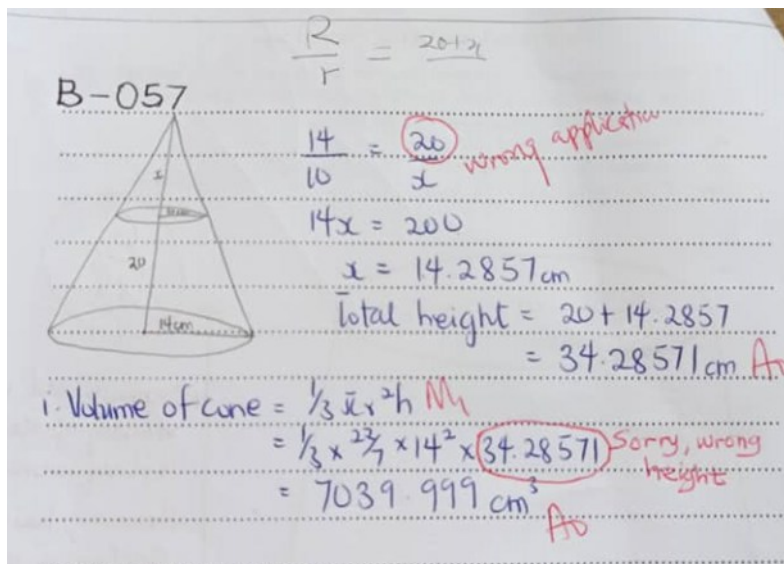
$$= 17248.33 \quad A_0$$

\therefore The volume of the original cone is 15748.33 A_0

as rounded to the nearest whole number.

Figure 1: Solution Presented by Participant K-036

A critical analysis of the solution presented by K – 036 reveal *inappropriate ratio* $\left[\frac{14}{10} = \frac{20+x}{20}\right]$ which led to the *wrong height* [28cm] and culminated into the wrong volume $[5749.33\text{cm}^3]$. This appeared to be one of the prominent challenges that faced most of the respondents who demonstrated conceptual understanding of the problems but were unable to successfully solve the problems. Very similar to the difficulty faced by K -036 was that of B – 057. She too demonstrated great knowledge of the concepts except for the challenge of wrong application of proportion. Instead of $\left[\frac{14}{10} = \frac{20+x}{x}\right]$, she presented it as $\left[\frac{14}{10} = \frac{20}{x}\right]$. This led to a wrong height, $x = 14.2857\text{cm}$, instead of 50cm. The wrong height ($= 14.2857\text{cm}$) led to an obvious wrong volume for the original cone (7039.999cm^3).



B-057

Diagram of a cone with a smaller cone inside it. The height of the smaller cone is labeled x . The height of the larger cone is labeled 20. The radius of the larger cone is labeled 14cm.

$$\frac{R}{r} = \frac{20+x}{20}$$

$$\frac{14}{10} = \frac{20}{x}$$

$$14x = 200$$

$$x = 14.2857\text{cm}$$

$$\text{Total height} = 20 + 14.2857$$

$$= 34.2857\text{cm}$$

i. Volume of cone = $\frac{1}{3} \pi r^2 h$

$$= \frac{1}{3} \times \frac{22}{7} \times 14^2 \times 34.2857$$

$$= 7039.999\text{cm}^3$$

Handwritten notes in red ink: "wrong application" next to the ratio equation, and "Sorry, wrong height" next to the final volume calculation.

Figure 2: Solution Presented by Participant K-057

In the follow up interview, participants were asked “Can you explain how you used the ratio approach in solving the question?” Here is what the participant had to say:

Participant K-057: *I tried dividing the greater numbers over the smaller. I was really confused, so I just guessed.*

Participant K-024: *For ratio, I cross multiply after dividing the numbers. So I divided it and multiplied.*

The difficulty posed by the inability of students to apply the concept of ratio and proportion alright, run through all the problem types. Thus, students who ‘suffered’ on the Familiar problem by not being able to apply ratio and proportion, encountered the same fate on the Near transfer problem. The solutions presented by B – 002, attest to this fact.

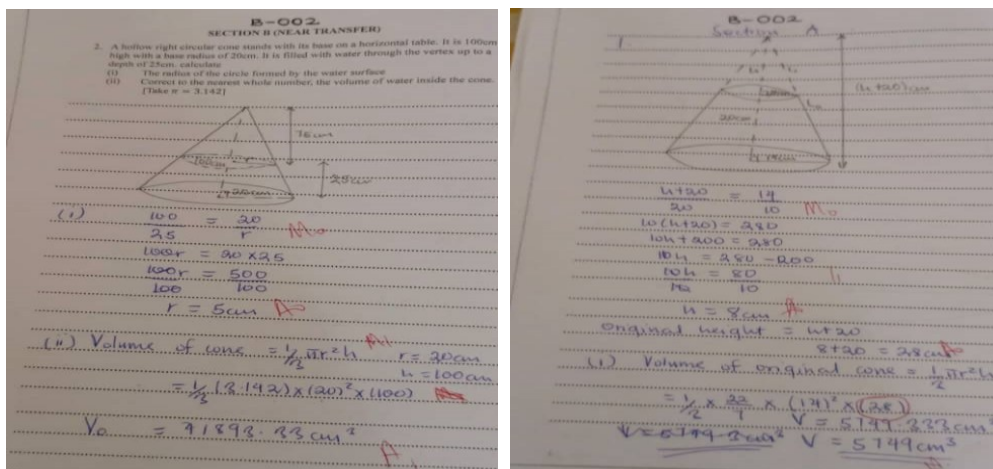


Figure 3: Solution Presented by Participant B-002

To sum up, it could be deduced that, having the conceptual understanding of solid geometry problems without being able to rightly apply other related concepts, such as ratio and proportion in this case could lead to non-performance. Students are most likely going to encounter solid geometry problems that require the application of other related concepts that may not directly be geometry related. Mathematics teachers should take note and model out more related problems for students to practice. Also, real life does not present problems that require an isolated knowledge for solution. Students would always have to apply knowledge from varied sources to solve problems within a given context. Such skill and expertise, which was identified as lacking among even the brilliant students, is transferability. The Common Core Curriculum seeks to place much emphasis on these skills.

Inability to sketch the problem

The Near transfer problem (2nd problem) was presented as a story problem without any supporting diagram. To solve the problem, students were expected to demonstrate their conceptual understanding of the problem through the kind

of sketches they make of the problem. A close study of students' work revealed three categories of students who attempted solving the Near transfer problem: those that attempted solving without any sketch, those that made wrong sketch of the problem and those that got the sketch right.

In the follow up interview, participants were asked "Why didn't you sketch when solving the question?" Here is what the participant had to say:

Participant B-002: *I don't know for this question we need to sketch.*

Participant B-023: *I don't understand the question.*

Participant K-041: *I know for this type of question, I need to sketch but I always get it wrong.*

All respondents who attempted solving without any sketch as well as all who got the sketch wrong could not solve it right. It is noteworthy however that, all who got the sketch right either got all the marks allocated (10 out of 40) to the Near Transfer problem or got some of the marks. Those who could not score the full marks were challenged by the concept of slant height.

Mistaking slant height for vertical height of a cone

The fact that only two of the 99 students had good knowledge of the clear difference between the vertical height and the slant height of a cone, is worth noting. Almost all the respondents had no idea about the difference between the slant height, and the vertical height, otherwise referred to as height, h . The follow-up interview on 13 students whose work revealed some degree of conceptual understanding revealed that, a third student, B – 011, seem to have understood the difference between the two types of heights (in relation to a cone). This is because, her response, when asked:

'even though you quoted $\pi r l$ rightly as the curved surface area of a cone, you still used the wrong value for slant height. What could have accounted for that?'

$$\begin{aligned}
 h &= 24.4 \text{ m} \\
 \text{Surface Area} &= \pi r(l + r) \\
 &= \frac{22}{7} \times 2.5 \times (24.4 + 1) \\
 &= 268.4 \text{ m}^2 \\
 &= 52.1 \text{ m}^2 \\
 &= \frac{22}{7} \times 1.5 \times (10.5 + 1.5) \\
 &= 49.5 \text{ m}^2
 \end{aligned}$$

(5)
SLANT HEIGHT!

Figure 4: Solution Presented by Participant B-011

Her response was:

'I actually know that the slant height is not the same as the vertical height. But, I just don't know what happened to me when I was solving this very question' [B-011].

Drawing from the works of students, it became clear that 98% of the students did not know that slant height was not the same as the vertical height of a cone. This was a major challenge for students who even demonstrated conceptual understanding of the problems. The implication for mathematics teachers is that emphasis must be placed on the difference between the two types of heights in relation with cones. Teachers may also have to be intentional about the types of examples they work out with students in class. These practical exposures could create an appreciable consciousness within students about the difference between slant height and vertical height of cones.

Summing up the difficulties of students when solving solid geometry problems, the data revealed three key difficulties: Inability to apply the concept of ratio and proportion alright; Inability to sketch the problem; and Mistaking slant height for vertical height of a cone. It came out clearly that, no matter how students had mastery over solid geometry problems, their inability to transfer knowledge on ratio and proportion, inability to make appropriate sketches of story problems as well as mistaking slant height for the vertical height of cones posed significant difficulties for students while solving solid geometry problems. The findings are in line with the findings of Numan and Hasan (2017); Surya (2012); Purba et al. (2017). For instance, Surya (2012) indicated that one key reason for low achievement is the

insufficient opportunity for students to transfer their learning to new concepts, a pattern compounded by language barriers in comprehension.

Findings, Conclusions and Recommendations

Findings

The study revealed the following key findings:

1. The percentage scores of the final year students on Familiar, near transfer, far transfer and non-routine problems in solid geometry achievement test depict a woeful performance. Students could not solve problems that are familiar with and were solved in class before, scoring approximately 15% on average. This study not only confirms the fact that students struggle with solid geometry problems but perform abysmally when they attempt such problems.
2. Three difficulties were pronounced amongst students when solving solid geometry problems. These were: Inability to apply the concept of ratio and proportion alright; Inability to sketch the problem; and Mistaking slant height for vertical height of a cone.

Conclusion

Based on the findings, the study concluded that:

1. majority of students encounter difficulties transferring knowledge from what they have learnt to solve non-routine problems. The main difficulty might be drawn from their inability to think critically and logically and applying problem solving strategy, both in general and specific terms. The results of the study showed that the average percentage scores, students performed poorly on achievement test in Familiar, near transfer, far transfer and non-routine problems in solid geometry. This confirms the fact that students struggle with solid geometry problems.
2. the pronounced difficulties in solving solid geometry problems reveal specific areas where students struggle. The inability to apply ratios and proportions correctly, difficulties in sketching problems, and confusion between slant height and vertical height in cones indicate gaps in foundational understanding and spatial reasoning.

Recommendation

The study recommends that educators should:

1. design tasks that require students to manipulate ratios within diverse problem settings, thereby enhancing their ability to transfer these concepts to novel, non-routine problems.
2. provide explicit and comparative instruction on distinguishing between different dimensions in three-dimensional figures thereby helping students consolidate their understanding and promote the transfer of accurate dimensional reasoning to other solid geometry problems.

Conflict of Interest Statement

The Authors declare no competing interest.

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Atepor: Conceptualisation, design, analysis, supervision, writing. Ayambire: Writing, Editing/reviewing, data acquisition, data analysis. Yarkwah: Supervision, final approval

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Generative AI Statement

As the authors of this work, we minimally used the AI tool (ChatGPT) for the purpose of summarising. After using this AI tool, we reviewed and verified the final version of our work. We, as the authors, take full responsibility for the content of our published work.

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Approaches to the Teaching of World English in the Ghanaian Classroom Context: A Survey of Public SHS Teachers in the Krachi East Municipality, in Oti Region

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Abstract

Research on the impact of World Englishes on instruction in public senior high schools in Ghana's Oti Region's Krachi East Municipality served as the basis for this thesis. The teaching of English is hampered by a number of unprecedented challenges that modern English language instructors must overcome. Not as much has been written about Ghanaian senior high school teachers' thoughts on teaching writing using World Englishes as there has been about the globalization of English and the relationship between regional dialects and standard English (Canagarajah, 2006; Jenkins, 2014; Kachru, 1992; Saraceni, 2015). Because of this, data for the study was collected from 36 teachers employed by the Krachi East Municipality's public senior high schools.

The study used a mixed-method methodology in an attempt to address the problem. The results demonstrate that the teachers who participated in the study have a solid understanding of Wes. Additionally, the survey discovered that most teachers had a favourable opinion of code-switching between their home tongue and the target language. Furthermore, the study's findings showed that the majority of educators have favourable opinions about using regional or local English dialects when instructing students in writing. Nonetheless, the teachers noted several barriers to incorporating regional and local language variations into their lessons, including time constraints, the complexity of these variations, and ignorance of their differences. The results show that professional development programmes are essential to improve the professional self-esteem of Senior High School (SHS) teachers, address the issues and challenges brought up, and teach them about the linguistic superiority of native speakers rather than their normalcy and naturalness, as well as the political and ideological nature of standardization. Views of senior high school instructors in Ghana regarding the use of World Englishes in writing instruction. Because of this, data for the study was collected from 36 teachers employed by the Krachi East Municipality's public senior high schools.

Keywords: *World Englishes, Lingua Franca, Translingual Approach, Standardisation*

Introduction

The different dialects and styles of English that are spoken in multicultural and multilingual contexts worldwide are referred to as “World Englishes” (Wes). Both domestically and globally, English is the most extensively spoken language in the world (Jenkins, 2014; Matsuda and Matsuda, 2010; Saraceni, 2015). The idea that English is a single, dominating variety is contested by Wes studies, which emphasizes the language's pluralization. In contrast to native speakerism, which holds that native speakers (NSs) are linguistically better, Wes assert that English belongs to everyone who uses it, whether as a main or secondary language. Localised or indigenous English dialects are also referred to as Wes, especially in areas where the US or the UK have had an influence. It entails recognising different dialects of English and examining the ways in which sociolinguistic histories, cultural contexts, and contextual elements influence English usage across the globe. The Three-Circle Model

developed by Kachru (1992) places the US, UK, Canada, Australia, and New Zealand in the Inner Circle, where English is the primary language; Ghana, India, Bangladesh, and Sri Lanka in the Outer Circle, where English is used as an additional language for both intra-national and international communication; and China, Egypt, Indonesia, and Israel in the Expanding Circle, where English is used primarily for international communication.

According to Jenkins (2014), there are more English speakers in the Outer and Expanding Circles than in the Inner Circle. In order to investigate geographical variations in English, the study of Wes was first initiated in 1978. The practical aspects of English's use as a global language include appropriateness, comprehensibility, and interpretability. The International Association for World Englishes (IAWE) was founded in 1992 at the University of Illinois in the United States, while the International Committee of the Study of World Englishes (ICWE) was founded at the 1988 TESOL conference in Honolulu, Hawaii. English is currently used as a first (L1) or institutionalized second (L2) language in about 75 territories for administrative, educational, and legislative purposes.

The term WEs was first used in 1985 by Smith and Kachru. In circumstances where English is being used as a second language (ESL) or as a foreign language (EFL), standard variations and myths about native speakerism still exist (Jenkins, 2014; Saraceni, 2015). Saraceni (2015) contends that NSs are frequently given preference in employment markets and that native-speaking models are primarily used in EL teaching materials. Consequently, Wes scholars advocate a paradigm shift from monolingual to pluralistic approaches. They propose methodologies that are contextually appropriate, culturally sensitive, and promote multilingualism in teaching (Canagarajah, 2006b; Matsuda and Matsuda, 2010; Saraceni, 2015). According to some academics, writing training should incorporate a variety of English dialects, regional cultures, and religious beliefs (Andniou, 2015; Canagarajah, 2006a, 2006b, 2011; Horner, NeCamp, and Donahue, 2011; Thresia, 2015).

World English and Wes are sometimes mistaken. World Englishes are several English dialects that have been created all over the world, whereas World English refers to English as a lingua franca in international contexts like commerce and diplomacy. To emphasize how globalization contributed to the

spread of English and its use as a lingua franca, some academics favour the term “Global Englishes.”

Native speaker myths and monolingual presumptions still exist in Ghana, as they do in other nations in the Expanding Circle (such as China, Japan, and Korea). Ghana follows Kachru’s (1992) model as a norm-dependent country, relying on Inner Circle varieties (British and American English) for teaching models, educational materials, and performance evaluation. British English (BrE) is preferred for academia, administration, and social communication. Many Ghanaian teachers and students believe proficiency in Inner Circle English varieties ensures international success.

English continues expanding due to globalisation and the increasing need for cross-border communication. It remains vital in fields such as business and science. However, EL teachers worldwide face challenges due to insufficient teaching materials, particularly in Outer and Expanding Circle countries. Many rely on textbooks based on Inner Circle norms, primarily British or American English (Matsuda, 2003). This reliance impacts teaching ideology and identity formation.

Even though English is widely used, little is known about EL instruction and learning in Ghanaian EFL environments. Scholarly attention to writing teaching in Ghana has been scant. Western cultural ideals are frequently included into teaching materials, which may not be in line with Ghanaian customs. Researchers from Wes advise incorporating regional cultural values and languages into writing instruction in order to close this gap. In EFL situations, Saraceni (2015) emphasizes bringing attention to problems like white privilege, neo-colonialism, Western cultural domination, and native speakerism. In a similar vein, Kirckpatrick (2012) recommends replacing Inner Circle cultural norms with regional and local cultural issues in EL curricula.

In order to address these issues, a study on the opinions of EL instructors at three public senior high schools in Ghana’s Krachi East Municipality intends to investigate their viewpoints regarding the use of Wes-oriented approaches in writing instruction. Curriculum designers, including the Ghana Education Service (GES) and the National Council for Curriculum and Assessment

(NaCCA), will use the study's findings to create curricula that integrate regional languages and cultures.

The goal of this research is to investigate how EL writing teaching in Ghanaian senior high schools may be improved by Wes-oriented pluralistic approaches. It will specifically look at how EL teachers feel about Wes-oriented/pluralistic methods to teaching EL writing and determine what supports or hinders localization of these approaches in EL writing instruction.

To sum up, World Englishes offers a framework for comprehending the variety of English dialects found around the world. Although EL instruction is still influenced by Inner Circle English standards, Wes scholarship promotes a change to pluralistic and context-sensitive methods. By investigating how Wes-oriented approaches might enrich EL writing teaching. This discussion would be enhanced by the planned study on the opinions of senior high school teachers in Ghana.

EL instruction in Ghana can become more inclusive and contextually relevant by including regional languages and cultural values into curricula.

Literature Review

The literature on the subject is reviewed in this section.

Context of English in Kachru's three concentric circles

The literature on the division of English into three categories—English as a Foreign Language (EFL), English as a Second Language (ESL), and English as a Native Language (ENL)—is reviewed in this section. These are separated into the Inner Circle, Outer Circle, and Expanding Circle by Kachru's (1992a) Three-Circle Model, which illustrates various sociolinguistic realities and historical processes of English's spread. The inner circle consists of native English-speaking nations, or ENLs. The United States, United Kingdom, Australia, Canada, and New Zealand are among the nations represented by the Inner Circle where English is the primary language.

English has become deeply embedded in many countries as a result of historical migration and colonisation. These people are known as native speakers (NSs) and are considered to speak English as their mother tongue (L1) (Jenkins, 2014; Kachru, 1992a; Saraceni, 2015).

Inner Circle countries have historically controlled the norms and criteria for English learning and performance globally, despite the fact that Kachru's concept does not imply linguistic dominance. American and British English standards serve as the foundation for these “norm-providing” countries' English language teaching (ELT) and evaluation techniques (such TOEFL and IELTS). Among these nations, the UK is commonly recognized as the “origin” of English, and its variation is known as Standard English. The spread of the English language from the United Kingdom to other countries in the Inner Circle is referred to as the “first diaspora”. The United States, United Kingdom, Australia, Canada, and New Zealand are among the nations represented by the Inner Circle where English is the primary language.

Outer Circle (Post-Colonial Countries – ESL)

Former American and British colonies where English was introduced during colonial power include the second diaspora, symbolized by the Outer Circle. These countries include the Philippines, Malaysia, Singapore, Pakistan, Nigeria, and India. English is utilized as a Second Language (ESL) and as an official or administrative language in these regions (Higgins, 2003).

English is a “norm-developing” language because, despite its localization and cultural adaptation, British and American norms nevertheless influence English education and competency evaluation in Outer Circle nations (Saraceni, 2015). Scholars such as Lowenberg (2002) contend, however, that these regional English dialects, which are frequently referred to as institutionalized variants, have evolved unique lexical and grammatical characteristics.

In spite of this, ELT in these areas is nevertheless shaped by native-speaker standards. To promote the use of Standard English rather than regional variants like Singlish, the Singaporean government, for example, started the “Speak Good English Movement” in 2000. According to Kirkpatrick (2012), a large number of Asian Englishes continue to use native-speaker models for evaluation, learning resources, and pedagogy. Saraceni (2015) points out that the fact that many nations do not recognize regional English dialects is one factor contributing to this persistence.

Whether ESL speakers should be regarded as native speakers of their regional English dialects is a major topic of discussion in the literature. Even if ESL

variants are different from interlanguages, Kachru's model insists that only Inner Circle speakers are considered NSs (Kachru, 1997; Lowenberg, 1986). Other names for these variants have been suggested by scholars, including "second language varieties" (Prator, 1968), "local Englishes" (Streven, 1992), and "institutionalised varieties" (Kachru, 1982).

Expanding Circle (EFL Contexts)

The Expanding Circle, which encompasses countries where English is studied as a foreign language (EFL) rather than being widely institutionalized or spoken natively, represents the third exodus. Examples of this include Saudi Arabia, Egypt, Japan, Korea, China, and Russia. English has no official standing and is mostly used for international communication in these contexts (Matsuda & Matsuda, 2010; Saraceni, 2015).

Unlike the Outer Circle, where English has been localized, EFL users solely use Inner Circle standards for language learning, proficiency assessment, and instruction. English is a lingua franca for worldwide communication, despite the fact that native speakers are regarded as superior in some countries. Standard English varieties, primarily American English (AE) and British English (BrE), are the sole acknowledged forms for learning and evaluation (Jenkins, 2014; Saraceni, 2015).

Because native-speaker norms predominate in Expanding Circle countries, English proficiency tests that are exclusively based on BrE and AE norms, such as the TOEFL, IELTS, and TOEIC, have received international respect (Lowenberg, 2002). The widespread belief that only Standard English is "authentic" has led to debates over who is allowed to use and possess non-native dialects.

Discussions on English variants' acceptance and ownership

The ownership of English has been a topic of significant debate. Some scholars believe that English belongs to all of its users, not just native speakers. Widdowson (2003) asserts that English is an international language that cannot be governed by a single nation. Similarly, Crystal (2012) argues that once a language becomes global, it belongs to all speakers, not just native speakers.

However, Yoo (2013) contends that context determines ownership: English speakers in the Inner Circle own their native dialects (such as British or American English); speakers in the Outer Circle own their regional dialects (such as Indian or Singaporean English); and speakers in the Expanding Circle do not, since there are no recognized regional dialects.

It's still up for debate whether non-native English speakers should be allowed to serve as acceptable teaching and assessment models. Quirk (1990) promoted constant exposure to Inner Circle standards, arguing that non-native English speakers were inadequate and unable to teach. In a similar vein, Yoo (2013) rejected some non-native Englishes (like Konglish) as "broken English" because they lacked regular linguistic patterns.

Other academics, however, disagree with this viewpoint. According to Saraceni (2015), language variations ought to be seen as inventions as opposed to mistakes. Similarly, Kachru (1991) argues in favor of non-native varieties' inventiveness, claiming that their distinctions are due to sociolinguistic and cultural factors rather than flaws.

Because it emphasizes the conflict between linguistic diversity and the persistence of native-speaker norms, this study of World Englishes has a direct bearing on how English is used. British and American English remain the norms for teaching, learning, and assessment, even though English has evolved into many locally distinct dialects. This bolsters the idea that proficiency is associated with native-speaker models, despite English's widespread use as a global lingua franca. Language policies and instructional practices in ESL and EFL contexts are therefore influenced by ongoing discussions regarding linguistic ownership and validity.

Materials and ideology

Ideology can be seen as a tool used in language training to divide different people and groups. It provides pupils with an ideal model to follow (McGroarty 2010: 8). In light of this notion, McGroarty contends that the inner circle countries' publications offer a Standard English variation that is either RP or General American as the ideal. However, when it comes to ideology, there are other factors to take into account. One study, for instance, examined published textbooks used in private schools in Iran, a nation that is part of the growing circle.

According to the researcher, those textbooks provide a strong emphasis on conversation and characters that are primarily focused on market economy, entertainment, and business dealings (Taki 2008:139). This ideology is not acceptable in other circumstances, despite being common in western culture. Furthermore, the idea that English language and culture are superior is promoted by these works that are based on inner circle circumstances (Abdollahzadeh and Baniasad 2010:217). Textbooks depict successful white middle-class individuals leading ideal lives, with their primary concerns being where to spend their summer vacation. However, there are hidden realities that are seldom highlighted, such the large number of Indian or African minorities residing in the UK (Dendrinos 1992:153).

In addition to what has already been discussed, textbooks that concentrate on inner circle norms are ill-suited to preparing students in outer and growing circle nations where non-native English speakers will be the primary target language community. According to McKay (2012), one strategy used in English instruction is to modify a British English textbook for the Ghanaian environment. The book's characters and illustrations should reflect both British and local culture. This is because the book's cultural friendliness would make it more pleasant to utilize. Teachers do, however, have a propen'ity to think that novels written by non-native speakers are inferior to those written in the inner circle nations (Dendrinos 1992: 49).

According to Crystal (Crystal 2003:125), there is an innate desire to speak one's mother tongue and to reject a language that has been imposed from another culture. There are various methods to show this dissatisfaction. Students may demonstrate resistance to textbooks by purposefully leaving their books at home, writing on the margins, or tearing them to pieces.

Additionally, instructional materials affect identity development in addition to second language acquisition. Learning a second language also means learning a second culture and, consequently, a second identity, as Brown (1994: 63, cited in Birkner 2014). The best features of the inner circle countries' cultures are shown in textbooks, as was previously said. This could have two effects on the students. First, especially in countries that are a part of the expanding circle, some students may find the foreign culture interesting.

They are therefore more impacted by the materials in the inner circle. Students may take on an imagined identity in an attempt to closely resemble the model that is taught in textbooks. Their desire to be a part of an imaginary group is the issue. Since it's an imagined community, confronting reality might cause a lot of annoyance.

Methodology and evaluation

In order to “absorb what they felt were the latest ideas in English teaching,” thousands of instructors from the outer and expanding circle countries annually enroll in postgraduate courses in the US and the UK (Quirk 1990:3–10). Through exposition and language use in communicative activities, CLT enables students to utilize the language in a more realistic manner, claims Harmer (2007:50). It indicates that rather than studying about the language, the pupils learn how to utilize it. The teacher's job is to help the students by offering criticism and encouraging self-reliance.

CLT places greater emphasis on speaking and listening abilities, despite the fact that the four skills are developed in various circumstances. Students spend a lot of time working in groups to discuss various topics. In terms of ideology and identity, this approach appears to be comfortable for pupils from western cultures, based on my personal teaching experience. Since the majority of them are accustomed to this style of instruction, they do not perceive a foreign technique being imposed upon them, and they appear to take pleasure in group activities. Identity is not in danger in this situation since CLT enables educators to concentrate on local contexts and take into account the backgrounds of their students.

While establishing a consistent target variety is crucial for teaching English, other crucial factors in English Language Teaching (ELT) include creating appropriate materials and building successful curricula. Given the constantly changing English language scene, ELT curricula and resources must be creative to address the growing complexity of English language instruction. Making ELT materials and curricula effective while dealing with the difficulties presented by different, WE phenomena is frequently challenging. In the twenty-first century, two key concepts for addressing the novel problems people face on a daily basis are innovation and adaptability.

This phenomenon applies to ELT just like it does to other areas of life. Similar to this, it is crucial to take into account the adaptation factors in ELT, which are elements that would ensure that different facets of the curriculum, materials, methods, and approaches serve the intended aims as effectively as possible. According to Hadley (1999, cited in Birkner 2014), certain Japanese colleges and universities have introduced innovative ELT courses at the postsecondary level. In response to the Japanese Ministry of Education's orders and to satisfy the need for efficient English language education, these colleges and universities adopted what Hadley refers to as "innovative" ELT curricula.

The use of English only in the classroom (also known as immersion), the lack of teacher-centered instruction, and the allowance for students to express themselves freely—including "laughing, joking, and expressing their opinions in English" (Hadley, 1999 cited in Birkner 2014)—are some characteristics of these curricula.

Several interesting tendencies emerge when examining the characteristics of "innovative" ELT courses. It is clear that the administration of these institutions treated the development of pupils' communication abilities seriously. Additionally, by creating English-speaking scenarios in non-native surroundings, an effort is made to provide learners as much exposure to English as feasible. The overt efforts to involve native-speaking teachers and kids in the process may be a reminder of the "Anglo-Saxon attitudes" of grassroots administrators. These kinds of problems continue to perplex ELT circles worldwide.

The language curriculum should be in line with the "theory of language as social action." To structure and arrange the curriculum, Coffin (2003, cited in Bhowmik, 2015) advises language teachers and curriculum designers to leverage the "functional" aspects of language use. She cites text structure, experience, interpersonal, and textual grammar as the four language domains in which students need to improve their comprehension.

These four domains each support different facets of language use in daily life. For instance, understanding text structure might benefit students who are dealing with a variety of written and spoken texts in various situations and cultures.

Students who comprehend experiential grammar get “grammatical resources for representing the world,” which increases their awareness of the people, things, circumstances, and procedures involved in language use. Textual grammar also helps students organize their communications to facilitate the smooth “flow of information,” while interpersonal grammar deals with how to effectively incorporate linguistic choices based on a variety of social relationships and attitudes (Coffin, 2003).

According to Coffin, a thorough and methodical examination of these four linguistic domains can yield valuable information for creating curricula for English language learners. Coffin’s argument is intriguing because she suggests identifying a group of written and spoken genres that are closely related to the social and cultural environments in which language learners are most likely to function. The language curriculum might then include these genres.

Although Coffin’s acknowledgement of social and cultural sensitivity supports the pluricentrism at the center of the discussion around a World Englishes perspective of ELT, there may be issues with her concept of an ELT curriculum. English training has spread across all national borders in the twenty-first century. It is therefore exceedingly difficult to develop a localized, context-specific curriculum that would encompass all social and cultural contexts that English language learners may face. Additionally, the primary goal of ELT at the moment is the development of communicative skills.

It would undoubtedly not help students achieve this goal to study a few spoken and written genres. In order to contribute to the contemporary discourse on ELT, Ellis (1993, referenced in Bhowmik, 2015) makes the case for structural syllabuses in English language programs. For English language learners, structural syllabuses would include language structures at different levels (such as phonology, morphology, and syntax). Ellis’ thesis is based on the idea that teaching grammar to students should be a component of “raising their consciousness.” To put it briefly, consciousness raising is the process of establishing in learners an awareness of the different “formal and functional properties” of the target language.

The “learnability” paradigm of L2 acquisition is consistent with this consciousness-raising process (Ellis, 1993). It is important to keep in mind

that there have been lengthy discussions on whether or not grammar teaching actually aids language learning, even though Ellis' reports offer intriguing perspectives on L2 acquisition to the design of ELT curricula. According to Ferris (1999) and Truscott (1996), cited in Bhowmik (2015), ELT curricula that fail to take contextual factors like these into consideration may prove to be ineffectual as research attempts to establish a common understanding of the intelligibility of various English dialects worldwide.

Additionally, realistic texts are thought to help close the gap between students' language proficiency and their ability to utilize the language in everyday contexts. According to the literature in the topic, authentic texts and materials do have some issues despite their purported efficacy.

The discrepancy between real texts and language exercises is one issue. According to Ferris and Truscott, authentic resources are useless unless they are able to elicit genuine answers from language learners. When it comes to English-language materials, this phenomenon is particularly prevalent. For example, ELT tasks tend to focus more on guessing than precise control and understanding because students cannot relate the tasks to the contexts (i.e., the materials used come from contexts like the USA or Britain that are completely new to them).

It's also important to exercise care when it comes to the assertion that authentic materials boost motivation for language assignments. Artificial materials were thought to be more intriguing than authentic ones. The effectiveness of authentic materials depends on a number of factors, including the teacher's perception of "each student's ability," the students' "temperament and readiness," and the teacher's evaluation of how to work with the resources. In this situation, it seems sense to include local teacher educators' perspectives while developing curriculum and materials.

As it is evident, resources cannot engage students in language learning activities on their own. Teachers must put in a lot of effort and commitment to do this. In actuality, language learners find it very challenging to utilize the resources to their full potential in the absence of teachers' diligent efforts. The bottom line is that it is hard for teachers and students to relate to the language tasks in ELT classes unless more locally relevant, culturally and contextually particular materials are provided.

English language learners should be exposed to English as an International Language (EIL) by include more characters from expanding-circle and outer-circle countries in textbooks, as Matsuda (2003) rightly argues. To successfully incorporate EIL components into the materials and elicit “authentic” answers from students, textbook authors and material producers need to be aware of the appropriateness of the tasks and characters.

All English language learners must be ready for future encounters with speakers of English dialects other than their own, since English is a genuinely global language (Crystal 2003) (Jenkins, 2006). Exposure to many kinds is one method of preparing children (Matsuda 2003). The internet, radio, television, and numerous worldwide newspapers all provide examples of various English dialects (Cook 1999). For instance, the International Corpus of English (www.ucl.ac.uk/english-usage/ice) provides teachers and students with online samples of a number of national and regional English dialects. Links to English-language newspapers from throughout the globe can be found on World-Newspapers (www.world-newspapers.com), another resource for educators and learners. English-language television networks from all over the world can also be viewed online.

For instance, Indian English broadcasters are available on New Delhi Television (www.ndtv.com) in India. In addition to exposing pupils to other English dialects, teachers should place a strong emphasis on teaching them intercultural competency and strategic thinking. Jenkins (2006) states that this will enable them to “adjust their speech in order to be intelligible to interlocutors from a wide range of [first language] backgrounds, most of whom are not inner circle native speakers” (p. 174). When communication breaks down, learners are able to negotiate for meaning through the purposeful and intentional application of strategic competency abilities. Having clear articulation and reducing speaking rates are two examples of these abilities (Petzold 2002).

Asking the other person to slow down, repeat, or wait while the student chooses the right word are examples of strategic strategies that should be taught to students. It would be very helpful to teach kids how to say things like “Could you please repeat that more slowly?” or “Could you please wait a moment while I search for the right word?” The ability to overcome sociolinguistic disparities is known as intercultural competence (Alptekin

2002; El-Sayed 1991). In order to negotiate sociocultural convergence within the ad-hoc speech community, learners should be able to discuss the sociocultural norms of their respective cultures (El-Sayed 1991, 166).

Teaching materials representing EIL users

Using World Englishes in instructional materials can further enhance their portrayal of EIL. Textbooks should, for instance, provide more prominent figures from the outer and growing circles more significant parts in chapter discussions than they already do. Furthermore, the inclusion of characters from outer- and expanding-circle countries facilitates the incorporation of cultural themes and images from those countries. Dialogues illustrating or discussing the use of English as a lingua franca in multilingual outer-circle countries can also be included in chapters. Including users and uses from expanding-circle and outer-circle countries that students are unfamiliar with would help them comprehend that English is not only utilized in the inner circle. The topic of EIL, including its history, prevalence now, prospective futures, and the role EIL learners will play in those potentials, can also be covered in detail in chapters of textbooks written for older students.

Internationalization, globalization, and the spread of English can all be examined in relation to some of the common global topics included in EFL textbooks, including history, nature, health, human rights, world peace, and power inequality.

Pedagogical approaches

Translingual approach

According to Huang (2010), the translingual approach to teaching L2 emphasizes “unifying language use,” in contrast to monolingual or native speaker approaches that view languages as distinct or disconnected cognitive processes. Kellman (1996) defines translingual writers as those who emphasize their freedom from monolingual and cultural constraints by using languages other than their own one. The pedagogical framework known as “Translingual Writing,” “Translingual Approach,” or “Translingualism” has been proposed by Horner, Lu, Royster, & Trimbur (2011), Horner, NeCamp, & Donahue (2011), and Lee (2014) as a way to help modern EL students in writing and/or composition classes more successfully.

The Translingual Approach to writing Instruction views language variations as assets rather than problems that need to be resolved. Additionally, this method promotes the inclusion of learners' needs, cultural values, and nondominant languages in writing sessions. The translingual approach encourages the following, according to Horner, Lu, Royster, and Trimbur (2011): (1) acknowledging the variety and hybridity of languages and linguistics in the US and other nations; (2) respecting all language users and their capacity to adapt a language to suit their own unique contexts; and (3) challenging monomodal and monolingual approaches by researching and teaching writers how to perform both with and against mythical expectations.

The principles of the translingual method

The driving pedagogies, curriculum, and design of this approach to writing and teaching writing in the US are relevant in other multilingual contexts since it challenges the idea of monolingualism (Lu and Horner, 2016). Seven ideas form the foundation of the "translingual approach" to teaching English writing and writing in the language. The rules that follow are directly lifted from Lu and Horner (2016):

- Language as performative: something we do instead than own, including English dialects, media, discourses, and modalities;
- communication activities as being influenced by and shaped by asymmetrical power relations in the social-historical, cultural, geopolitical, and economic spheres rather than being neutral or innocent;
- Language users actively shape and alter the very norms we use and the socio-historical contexts of usage;
- writers' social positionings and utterance contexts influence language use decisions, which directly affect our lives and the society we live in;
- the distinction as the standard for all speech, understood as translations across and among languages, media, and modality during apparent repetitions of prevailing norms as well as departures from the standard;
- All language users, including those who are socially categorized as mainstream or minority, native or first- or second-language speakers, published or student authors, and others, have expressed a wish to

- change accepted settings, opinions, and meaning-making standards; and
- the reality that every kind of communication is a mesopolitical activity that actively negotiates and establishes intricate power dynamics at the dynamic nexus of social-historical (macro) and personal (micro) levels.

The idea behind these guidelines is that all languages and/or dialects ought to be positioned with respect to Standard English. Stated differently, it draws attention to the fact that several linguistic codes are more equally powerful. This method is thought to be an excellent example of language use. The main goal of this method is to close linguistic gaps in writing training. However, translingual approaches to writing education support “Students’ Right to Their Own Language” (Horner et al. 2011), whereas monolingual approaches to writing instruction have alienated and marginalized their users’ language practices.

Learners gain a sense of control over both English and their mother tongues when a variety of EL types are used throughout the writing session. According to Lee (2014), students’ understanding of how they use language both within and outside of the classroom can be significantly improved by teaching writing classes utilizing the translingual approach to composition pedagogy. As previously noted, in many ESL and EFL situations, characteristics of the dominant sorts nearly always overlap with Western cultural standards that are at odds with local cultures (Canagarajah, 2006b; Jenkins, 2015; Lee, 2014; Saraceni, 2014).

Therefore, it is crucial to include local cultural issues and local languages in writing teaching in Ghana in addition to the dominant culture. Because they will learn to use both dominant and non-dominant (local or regional) types of English, blended education methods and/or their integration can help students succeed academically, in national and worldwide job markets, and while studying abroad.

Code-meshing/mixing and code-switching strategies

The terms code-switching and code-meshing are sometimes used interchangeably by academics who research second languages. In contrast to code-switching, which involves meshing or mixing linguistic units (words,

phrases, and sentences) within a speech, code-mixing involves combining or putting together various linguistic units (affixes, words, phrases, and clauses) from the grammatical systems of the two dissimilar languages in the speech context and the sentence.

The two terms' modified sections are positioned differently. Code-switching entails an intersentential code shift, whereas code-mixing entails an intrasentential code change. Some scholars define code-switching as the process by which a multilingual speaker transitions between languages, whereas code-mixing is the merging of forms from several grammars (King, 2006). Some scholars believe that these strategies should be used in the work of Expanding Circles lecturers, writers, and students.

The code-mixing approach to writing instruction was initially put forth by Canagarajah (2006b, 2011, 2012; Young, 2004, 2007, 2011; Young, 2004) as a framework for AAL writers and users to increase their linguistic resources in order to thrive in educational settings. Canagarajah (2006b) urges students and inexperienced researchers to apply code meshing in their academic publications, both in their first draft and in their final published versions, as part of his recommended code-meshing writing style.

According to him, code-meshing is a useful tactic for incorporating regional variations into scholarly writing or publications. He also says that we need to let students know that there are a lot of well-known and accomplished academics in multicultural and multilingual settings who are using scholarly writing to represent their norms and voices. He asserts that the code-meshing approach necessitates that students and academics not only understand local and existing norms, but also possess the ability to unite them in support of one's goals and voice. Teachers, students, authors, and academics must possess organized language and rhetorical knowledge in order to use this method. Likewise, Elbow (1999) proposes a code-switching approach to writing instruction. Students are easily able to integrate their regional styles into their initial drafts of scholarly writing because to Elbow's two-part code-switching approach to writing training. However, students should only follow normal written English norms while uploading their works.

However, Barbour (2002) supports oral academic communication in a range of English dialects. Barbour objected to the pluralized manner of the writing.

He argues that writers who are multilingual should only write in the most widely used varieties of American or British English. Unlike Barbour, Canagarajah (2006b) concludes that code-meshing, or the introduction of local variations in writing, is not intended to subvert dominant codes or elevate local codes in established varieties, nor is it a direct challenge to native or dominant codes.

Students in a multilingual setting will be able to tolerate monolingual English from the inside out by incorporating their own conventions into the current norms. By doing this, the dominant version will gain knowledge in addition to being inspired to create new codes.

For teaching writing in particular and English as a foreign language (EL) in general, the code-meshing method is more useful and efficient than the traditional code-switching technique. While code-meshing enables students to utilize a wide variety in their writing, which will help them succeed in the academic setting, code-switching permits the limited use of many varieties in students' writing and expects them to pick up the ability to apply different types discriminately. The distinction between code-switching and code-meshing approaches is not well understood by educators and learners in Ghana's EFL context, both at the school and university levels.

Thus, workshops, seminars, and trainings covering the aforementioned topics are essential for instructors' professional development in order to successfully incorporate such approaches into writing teaching and/or curricula.

One translingual tactic that Glee (2014) incorporates into her composition instruction is the code-meshing technique. Stated differently, she employs the code-meshing technique in her writing classes and claims that it gives the pupils a clearer perspective. She provides a number of the best methods and approaches for using the code-meshing methodology in writing instruction. It is crucial to talk about those methods and suggest them to teachers who feel that their composition pedagogies are changing.

The Circle of WEs Chart, which McArthur (1998) proposed, ought to be shown to the students. This picture can be used by educators to start establishing the foundation for students' comprehension of the Translingual approach, which will be followed by the application and advantages of code-meshing. The chart includes a number of EL dialects that are spoken around

the world. As a result, students will learn and/or discover that, in addition to the British and American varieties, there are many more varieties of English that are used around the world, including in the context in which they are studying the language. Teachers will thus gain a better understanding of Wes thanks to this.

After learning about Wes, educators can use the translingual approach, code-mixing, and code-meshing strategies into their lesson plans. Saraceni (2015) provides EL teachers in Expanding Circle countries with similar advice.

Teachers can practice and use the translingual approach that code-mixing symbolizes through multimedia tasks such as digital literacy tales. Through these exercises, students can investigate the hazy and fluctuating lines that separate contextual concepts of fluidity and distinctness, as well as nonstandard and standard.

Teachers should encourage their students to use both academic register and a combination of words and structures from their home language when standard/academic phrases do not express the exact idea that students want to convey.

Additionally, educators ought to give students access to code-meshed materials written by Wes experts and intellectuals. Students have the opportunity to examine the advantages and disadvantages of integrated communication and discourse.

Ghanaian educators might modify and adapt these methods to fit their own setting. They are very practical and helpful activities, so Ghanaian teachers should incorporate them into the curriculum and teach writing in senior high schools.

Users of the local variations are encouraged to advocate and write in their own English by the seemingly persuasive code-meshing and code-switching tactics. Nevertheless, there isn't a recognized regional variation that is pertinent to Ghana. The local/regional variations of English and pluralistic approaches are not well known to students, academics, or even teachers. Additionally, nothing is known about SWE norms by students, academics, and educators. The question of "errors or features?" and intelligence can be contentious. Prior to implementing the implications or strategies proposed by

Canagarajah (2006b) and Elbow (2011) in academic writing and instruction, English users in a multilingual and multicultural country such as Ghana should be aware of these difficulties.

The problems of “features and intelligibility” or “errors”

The issue of “errors or features” is being thoroughly examined. Any difference from the other variations, whether in pronunciation or a feature of a new English variety, ought to be allowed, claims Saraceni (2015). However, Quirk (1990) asserts that>NNLs are deficiencies. He noted that non-native English speakers are not good examples for teaching since they are poorly taught languages of Standard English forms. According to him, speakers, teachers, and students in Outer and Expanding Circle countries should be in continuous connection with NSs of Inner Circle countries. While strongly disagreeing with Quirk’s concern, Kachru (1991) sees non-native types as creative or innovative. He argues that the institutionalized kinds in the contexts are unsuitable for long-term interactions with NL. He provides two useful explanations for this: first, teachers are unable to keep in continual contact with the native language (NL) due to the abundance of information from the local variation and the scarcity of resources. The number of EL teachers is the second. He concludes that a variety of factors, 279question279g creativity, language, cultural contact, and the basic sociolinguistic reality of identity in a global context, may influence how one perceives what Quirk would consider a lack. He claims that English is owned by those who use it in different contexts.

Additionally, Standard English and Kachru’s (1991) declaration of ownership are supported by Widdowson (1994). He points out that those who speak English in Inner Circle nations have no claim to the language. The reasons made by other Wes researchers who advocate for the pluralization of English and the inclusion of a variety of dialects in writing and instruction seem more persuasive and motivating than Quirk’s (1990) stance. Their study mostly focuses on empowering non-native variety users, shifting from exonormative to endonormative usage—where users of new Englishes set their own norms—and shifting away from reliance on native models and toward local models to introduce non-native varieties.

Including non-native variations will aid in the development of English, which is becoming more complex and richer. There are well-known dialects, such as Singaporean Standard English and Indian English, that create their own standards and have their characteristics standardized by the best dictionaries in the world. After reading this encouraging research on English pluralization, it is clear that English teachers ought to incorporate a range of context-appropriate teaching and learning strategies.

Since Afghan EFL teachers might not be familiar with the problems of error and feature, it might be a good idea for them to study these topics before attempting to include their own unique style of English into their lessons. Administrators of Senior High Schools and GES could create and carry out teacher professional development programs to accomplish this. These professional development programs might be held annually, and the current topic could be one of the instructional focuses for the year. Following training, educators might be able to integrate the code-meshing methodology into their lesson plans.

The question of "intelligibility" is the other topic of dispute when it comes to English pluralization. According to Smith (1992), intelligibility is the ability of speakers of different language kinds to comprehend one another with ease. As a result, it concerns how a given language can be understood by English speakers. The most often utilized language for wider communication worldwide at the moment is English as a Foreign Language (EL). Nonetheless, all three of Kachru's model's circles continue to use a single, standardized form of English (Matsuda, 2006). This one-dimensional perspective on EL learning ought to be replaced with a multilingual and/or pluralistic approach. Intelligence is a primary concern in the transition from a monolingual to a bilingual approach.

Larry Smith is one of the foremost authorities on the topic of intelligibility. Smith (1992) and other World Englishes and English as an International Language researchers, such as Nelson (1992), focus on intelligibility in communication between EIL and WE speakers. Smith states on page 75 of his 1992 book that "every English user must be intelligible to every other English user." In the aforementioned quotation, he made no explicit reference to speakers of any "standard" form of English. Nonetheless, he makes reference to any native or

non-native English that is intelligible to both native speakers and non-native speakers of the English language.

Smith (1992) makes the case in his article that all people who wish to express their thoughts, whether in person or in writing, should be able to understand what is being said. NSs shouldn't be the exclusive ones assessing the intelligibility of a communication, claim Smith and Nelson (1985). Being a native speaker does not mean that they should be the only ones establishing regulations because speakers of other languages may find them difficult to grasp. Similarly, Bayyurt (2018) argues that in today's world, it is essential for native and non-native English speakers to understand each other. According to his findings, research on intelligibility in Wes and EIL shows that intelligibility and native English speaker status are unrelated.

According to the body of research on intelligibility, one of the most important aspects of communication for maintaining both short-term and long-term relationships is mutual comprehension. The key to teaching English is having an appropriate pedagogy that is appropriate for the environment in which it is studied and used. The literature on writing training demonstrates that academics and intellectuals have not given this field much attention. Therefore, it may be said that educators, administrators, students, and English users may not have a basic awareness of concerns such as intelligibility and faults or features. It is also probable that most English instructors, writers, and students are not familiar with Wes-informed methods and the ideas that go along with them (e.g., Britain, America, white people, Christianity, neo-colonialism, "the west," and so on). According to most Wes academics, new English dialects are novel and should be taught in WE classes, according to the Expanding Circle framework (Barbour, 2002; Elbow, 1999; Jenkins, 2014; Kachru, 1992a; Matsuda & Matsuda, 2010; Saraceni, 2015; Widdowson, 1994). However, other scholars contend that when it comes to issues like intelligibility, new innovations or variations of the EL should be comprehensible to both NSs and NNSs (Bayyurt, 2018; Smith, 1992).

Academics greatly support mutual intelligibility both within and between settings, as well as innovations in the EL. Teachers in Ghana might not be aware of these problems. Therefore, it is recommended that Afghan EFL teachers and students be made more aware of three difficulties prior to incorporating the new English variety. They could be taught, first, what

constitutes innovation and what constitutes error. Second, workshops and seminars may also increase their understanding of the intelligibility issue. It's also critical for writers to understand who they will be writing for. Through workshops and training, they can also learn about audience recognition.

Teachers and students may be able to write differently for a variety of audiences after they have a deeper awareness of these three issues. They can employ fresh inventions or EL variants specific to their setting, for instance, if they are writing for a national audience because it will be mutually accessible and understandable. They may not have any comprehension problems because they are used to the local English dialect due to their shared surroundings.

Nonetheless, they should refrain from using their local dialect of English in their writing if they are writing for a global readership that is unfamiliar with their surroundings and may not understand it. Once they are at ease and have mastered the use of English in their writing, they may present their diversity to a global audience.

The model of negotiation

According to Lee (2014), Canagarajah proposed and promoted the Negotiation Model for teaching writing in 2002a, 2006b, 2007, and 2012. When developing their lesson plans, EL teachers are advised by Lee (2014) to consider his writing pedagogy model. Writing in multiple languages is promoted by the "Negotiation Model." Canagarajah (2006c) contends that writers should be dynamic, versatile (e.g., writing between multiple cultures and languages), agentive, and able to creatively move/shuttle between discourse in order to achieve the communicative goals, as opposed to being static, passive, and stable monolingual writers and/or situating themselves within one language.

Canagarajah (2006c) asserts that "the main variable is not language or culture, but rhetorical context/objective" (p.14) in multilingual writing. Regardless of the language they employ, writers can alter their discourse and style in response to the rhetorical context.

To support this negotiation model orientation, Canagarajah (2006c) offers the following instructional implications: (4) Textual differences should not be interpreted as errors but rather as the authors' creative, purposeful, and strategic choices to achieve their contextual/rhetorical goals; (5) writers

should be encouraged to stop emphasizing writing as the only process of text construction; writing is a rhetorical negotiation for attaining functions and social meanings. (3) Students should be made aware that texts are not written only to reveal specific perspectives or information and are not transparent and objectives. Additionally, the texts are representational. We are unable to escape our identities, values, and interests when we write. When teaching writing in Ghanaian schools, this thorough and efficient method must be taken into account.

We provide guidelines for teaching writing. In order to create composition/writing classrooms where students' expectations and needs are satisfied, where learners' sociocultural backgrounds are respected, and where heterogeneity-blended linguistics is the norm, some Wes scholars have suggested pedagogical practices as instructional materials that other teachers should take into consideration.

According to Matsuda and Matsuda (2010), in EFL environments there are more intranational (national) and international uses for English. As a result, it has become difficult to use the local model or concentrate on only one kind. Additionally, they claim that it is no longer unrealistic to take into account the problems of comprehensibility and intelligibility in instruction. In the context of the Expanding Circle, they put up five pedagogical principles for teaching English. They advise Expanding Circle English teachers to incorporate these ideas into their lesson plans.

Teach the forms and functions of the dominant language. English teachers in EFL contexts should teach students the forms and functions of the dominant language, claim Matsuda and Matsuda (2010). Likewise, in his first recommendation, Kachru (1992b) addresses sociolinguistic profile, stating that pupils should be cognizant of the following: The global context of English; its main variations, uses, and applications; the distinctions between monolingual and multilingual society; and its consequences, such as code-meshing and code-switching.

It might be suggested that in addition to teaching the dominant language forms and functions, Afghan EFL teachers should also impart pragmatics concepts. It is recommended that workshops and training be used to increase the instructors' awareness of these concepts, as they may not be familiar with

them. To learn more about these concepts, they can also read published research publications about Wes.

Teach the non-dominant language's forms and functions. Additionally, Matsuda and Matsuda (2010) advise teachers to teach the nondominant language's forms and functions in EFL contexts. The main EL varieties, both native and non-native, as well as their users and purposes, shared and non-shared characteristics across different linguistic levels, and specific interactional context-relevant information—what he refers to as variety exposer—should also be studied by students, according to Kachru. In order to learn EL language that is pertinent to their situation, teachers can encourage their pupils to look at signboards in their neighbourhood. As Canagarajah (2006b) suggests, they can either gloss the footnotes or use the language and/or terminology that arose in the context for code-meshing.

Teach kids how to negotiate in discourse. Third, according to Matsuda & Matsuda (2010), educators should impart the “principles and strategies of discourse negotiation” to their students. Similarly, in his “contrastive pragmatic,” Kachru (1992b) exhorts EFL and ESL teachers to teach the connection between local cultural codes, including the use of apologies, regrets, condolences, persuasion, politeness, and declining offers and requests, and stylistic and discursive innovations. These guidelines address the growth of students' pragmatic knowledge and negotiating abilities. First, it could be proposed that teachers at the SHS level in Ghana work to improve their pupils' ability to negotiate. For instance, students should be able to explain why they have chosen to learn a local variation of English language proficiency (EL) if it may not be applicable in situations when native English speakers or others are present. For example, they can claim to have learned it since it is applicable to their situation and that they would utilise it to succeed professionally in their own setting.

Other principles and points for teaching Wes in Outer and Expanding Circle countries either speaking or writing

Students should be taught to distinguish between what works and what doesn't. Matsuda & Matsuda advise language teachers to teach their students the distinctions between what works and what doesn't in their fourth (4) principle. Although it might not be sufficient, Ghanaian teachers may need to expose their students to a local or non-dominant form of English in order to

successfully use this strategy. In a particular communicative context, they could also instruct students on the difference between invention (diversity) and error (difference). This mostly has to do with understanding. As a result, educators and students may need to exercise extra caution when determining which innovations are appropriate and which are not.

Explain the dangers of utilizing deviational traits. Language instructors should warn students about the risks of taking advantage of deviational components, according to Matsuda and Matsuda (2010). The risks could include poorer scores, meaning impairment, and understanding difficulties. Due to their inadequate understanding of the dominant variation, students who solely learn the local dialect of English and pursue further education elsewhere may receive inferior grades. A message that is written or spoken with too much divergence will be difficult for readers from both inside and outside the context to understand. Given the information presented above, it might be suggested that educators advise pupils to avoid deviating significantly from prevailing standards.

Enhancing the procedural knowledge of students, Canagarajah (2014) suggests a paradigm change based on the concept of Wes, contending that rather than focusing on propositional knowledge (such language rules and norms), EL instructors (ELTs) should help students build procedural knowledge (like how to negotiate or what to know). He also provides strategies for EL teachers to help their students grow and improve their procedural knowledge, such as: (1) language awareness (learning how grammar works in all languages); (2) negotiation techniques (promoting language and genre reconstruction or variation based on one's own preferences and dominant norms); and (3) rhetorical sensitivity (learning the value of elements like voice, genre, and creativity in communication). He believes that experience with a language in everyday situations should build this instinctively rather than explicitly teaching it to them.

Similarly, Matsuda & Matsuda (2010) advocate for the advancement of language reconstruction and variation linked to one's own inclinations and prevailing norms (using a local variety). They contend that teachers should teach pupils both the standard and regional varieties of English. Furthermore, a similar perspective was advocated by Kachru (1992b), who said that pupils should be familiar with both the major and regional forms of English. Kachru

(1992b) and Matsuda & Matsuda (2010) both emphasize the incorporation of personal preference or local variety. In conclusion, the recommendations put out by Wes researchers above are applicable to both standard ELT and English teachers' use of them when teaching writing in multicultural and multilingual contexts. Before adding procedural knowledge to the curriculum, it could be important to better educate Ghanaian teachers through training, seminars, and workshops.

According to fall (2000), Ghana's pronunciation of English is also very different from that of any other West African country with a similar colonial past and sociolinguistic and sociological roots. Ghanaian English is distinctive because to its restructure of (RP) ///, fe'J, post-tonic /a/ with orthographic, fel before a final /n/, the pronunciation of -able and -ative nouns, certain phrases with the Alternating Stress Rule, and a few other factors.

He contends that, for instance, /a/ and Id replaces a variety of (RP) segments and that, throughout the past 20 years, there have been discernible shifts in the direction of these two vowels. Finally, he points out that although Ghana's pronunciation differs from that of her more proximate neighbours and colonial companions, there are notable parallels in certain re-structuring patterns with both northern Nigeria and geographically more distant east and southern Africa.

Furthermore, fall contends that the lack of information on geographical variations has resulted in overgeneralization or the notion that certain qualities that transcend national or regional borders are geographically limited. Ghana offers a typical example of a national English accent in West Africa that has developed in a distinctly different way despite having a colonial past and a sociolinguistic foundation that is typically shared or comparable with other nations in the region.

At a period when researchers were still debating the legitimacy and status of Ghanaian English in relation to global English, Kofi Awoonor (1971), a well-known Ghanaian scholar who studied several elements of the English dialect used in Ghana, coined the term Ghanaian English. He contends that reflecting usages even at that time shows a great deal of innovation in the use of English in the Ghanaian society depicted in the novel. It particularly draws attention to a few lexical and syntactic elements that are creatively employed in

communication, as well as the linguistic and sociocultural ramifications for English in the nation. His claim and additional research on Ghanaian English's grammar and sound provide compelling evidence in favour of Ghanaian English's official designation.

As a result, Nii Amartei Amartei (2008) contends that the question of whether there is a dialect of English that is used that can be referred to as Ghanaian has been up for controversy for the past forty years. In order to restore the idea that Ghanaian English is distinct, he reexamines Ahulu's "How Ghanaian is Ghanaian English?" Amartei broadens his argument to encompass the generality of "New Englishes" in order to support the demand for codification for its legitimacy and legality. Additionally, he urges additional academic publications to back up Ghanaian English's acceptability and indigenization. He advises language instructors, policymakers, new English speakers, and anybody else interested in Ghanaian English to concentrate on the codification goal.

Methods

As part of a mixed-method approach, the study gathered data using both qualitative and quantitative techniques. A social topic under study can only be partially understood by a particular research methodology, such as qualitative or quantitative (Greene, 2008). People have diverse mental realities, and societies have varied realities. There isn't a single research method or tool that can help us better understand these many realities. In order to fully comprehend the study problem, mixed-method research (MMS) combines, gathers, and assesses both qualitative and quantitative data or methodologies in one or more studies or research projects (Creswell & Plano, 2011).

Instead of employing a single research method, the primary goal of this strategy is to gain a deeper understanding of a topic or study problem by integrating or mixing both research methodologies (i.e., qualitative and quantitative). Consequently, the research employed a mixed-method approach, gathering both qualitative and quantitative data through interviews and survey questionnaires. According to Creswell and Plano (2011), this kind of design incorporates certain research procedures that are selected by the researcher at the start of the project.

More precisely, an exploratory sequential design was used in the study (Creswell & Plano, 2011). “A qualitative exploration followed by a quantitative follow-up or by a quantitative analysis explained through a qualitative follow-up” is one possible starting point for this kind of study design (Creswell & Plano, 2011; p. 8). This design was chosen because the survey questionnaire had both qualitative (open-ended) and quantitative (closed-ended) items, while the interview solely had qualitative (open-ended) questions.

As a result, both qualitative and quantitative data analysis were required. To completely comprehend teachers’ attitudes, beliefs, and experiences regarding the implementation and local adaption of pluralistic approaches based on the concept of Wes to English instruction in Ghanaian schools, mixed-methods data collecting was also employed. Additionally, the data was assessed both statistically and interpretively using the mixed method.

Data collection instruments

Surveys and interviews were utilized to collect the data for this study.

Data collection process

Survey

Three parts made up the survey: questions about demographics, questions on the content, and a section about going to a follow-up interview. The survey consists of 17 questions, including three statements on a Likert scale, five yes/no statements, and nine open-ended prompts. We inquired about respondents’ demographics, their knowledge of the Wes topic, whether they had participated in seminars, trainings, or workshops on the topic, whether they believed pluralistic approaches based on the concept of Wes or regional English dialects were appropriate, and whether they used a variety of English in their ELT practices, particularly writing instruction. The types of professional development programs (PDPs) that would aid them in teaching English writing and were pertinent to Wes were also requested to be written down or listed.

Interview

The interview is the most common and efficient method for obtaining detailed information about the topic under study in qualitative research. The study employed semi-structured interviews to gain a deeper understanding of

teachers' attitudes, beliefs, perceptions, and experiences about the application and local adaptation of Wes-oriented or pluralistic approaches to teaching EL writing.

Data analysis

The interview is the most common and efficient method for obtaining detailed information about the topic under study in qualitative research. The study used semi-structured interviews to better understand teachers' attitudes, beliefs, perceptions, and experiences about the use and local adaption of Wes-oriented or pluralistic methods to teaching EL writing.

According to Cavanagh (1997), content analysis is a versatile method of textual analysis. To find sequences and/or patterns in the gathered data, qualitative content analysis (QCA) counts the categories or terms. After that, the significance of those patterns is thoroughly examined (Morgan, 1993; Sandelowski, 2000).

According to Cohen, Manion, and Morrison (2007), content analysis includes categorizing, coding, comparing, and ultimately deriving conclusions from the data.

Morgan (1993) asserts that data are "inductively" created into a number of categories in qualitative content analysis (QCA). Consequently, the current study evaluated the data using an exploratory approach. The exploratory method, also known as inductive category construction, creates new categories based on the data and/or content (Mayring, 2014). Similarly, Guest et al. (2012) pointed out that codes in exploratory design are not predefined but rather are produced from the material/data.

Therefore, rather than being predetermined, codes and categories were created using the data collected for this study. The survey's numerical data was statistically analysed using qualitative analysis information provided by Qualtrics software.

Q1: What is the attitude of Ghanaian educators toward teaching writing through pluralistic/WE-informed methods? In order to determine teachers' opinions regarding the use of pluralistic techniques and/or language variation in the teaching of English writing, the first study problem was examined utilizing survey and interview data. Seven teachers were unsure, whereas 29

of the 36 survey participants said that teaching writing in the classroom required the use of pluralistic techniques.

“Using local varieties of English in our classrooms will be very beneficial,” an instructor stated during the interview, “but there are challenges such as time constraints, the complexity of local varieties, and lack of awareness of the different varieties.” To solve those challenges, it will be beneficial to set up Professional Development Sessions (PDS).

Q2: How might regional initiatives to implement Wes-oriented writing teaching be impacted by the viewpoints of Ghanaian educators? Interview data was used to address the second research topic. The purpose of this study was to identify strategies for enhancing WE-oriented writing training’s localization. In order to further inform local adaptation efforts of pluralistic approaches based on the concept of Wes, this study topic sought input from instructors.

According to the poll results, 31 out of 36 respondents had a favourable attitude toward code-switching between the target and native languages, while the other five had a negative impression. “Using code switching and code mixing will help learners understand unfamiliar concepts with little or no difficulty,” a participant in the interview state.

Ensuring trustworthiness

Credibility (believability and/or trustworthiness) and dependability are the two most crucial factors that researchers must guarantee in qualitative, quantitative, or naturalistic research. Several research approaches employ triangulation to increase reliability, validity, and generalizability. It is said by Patton (2002) that “by combining methods, triangulation strengthens a study.” This could mean using a range of methods or data, including both qualitative and quantitative approaches (p. 247). According to Johnson (1997), using data, method, and investigator triangulation is the most efficient way to produce the different worlds that individuals conceive.

As a result, triangulation can take many different forms, including investigator triangulation (using many investigators), data triangulation (using a variety of sources), and method triangulation (using different types of data gathering methods). The current study validated its credibility and/or trustworthiness by member checks using a combination of quantitative and qualitative research

approaches. The study also employed a verification process to demonstrate reliability. Transcripts of interviews were checked by members as part of the verification process. The study was able to cross-check data from several sources and confirm the accuracy of interview transcripts by utilizing the researcher's reflection and feedback from the academic and professional network.

Findings

The results demonstrate that the teachers who participated in the study have a solid understanding of Wes. Additionally, the survey discovered that most teachers had a favourable opinion of code-switching between their home tongue and the target language. Furthermore, the study's findings showed that the majority of teachers have favourable opinions about using regional or local English dialects when teaching writing. However, they noted a number of obstacles that keep them from utilizing these kinds in the classroom, including time limits, the intricacy of local/regional variety, and their ignorance of the various varieties.

The findings suggest that in order to address the challenges and issues brought up, improve the professional self-esteem of SHS teachers, and inform them about the political and ideological nature of standardization as well as the superiority of native speakers' language, professional development programs are required. To develop a curriculum and pedagogical model that are more beneficial and effective, teachers' viewpoints, suggestions, and opinions should be taken into account.

Conclusion

The study's conclusions show that although teachers are well-versed in World Englishes and typically have favourable opinions about code-switching and the use of regional or local English dialects in writing instruction, a number of obstacles prevent their widespread adoption. Teachers are unable to properly include these variations into their teaching practices due to obstacles like time restrictions, their complexity, and a lack of awareness. These findings highlight the necessity of professional development initiatives that tackle these issues while also boosting instructors' self-esteem.

These kinds of programs ought to assist teachers in realizing that native-speaker superiority and standardization are ideological creations rather than

inherent linguistic standards. To encourage a more inclusive approach to teaching English, more useful and efficient curriculum and pedagogical models can be created by taking into account the opinions and concerns of teachers.

Recommendations

Programs must provide pre-service teachers with adequate assistance to help them become fluent in English, but they must also provide ongoing chances for teachers to evaluate their strengths and weaknesses, overcome their shortcomings, and build on their strengths both during and after the program. A presentation on NNS instructors or an opportunity for students to network with other NNS teachers (e.g., through the Nonnative English Speakers in TESOL Caucus) are two ways that certain TESOL institutions in the United States address this issue. They also rework an existing course to better meet the demands of pre-service NNS teachers. Similar efforts should be made in teacher education programs outside of English-speaking nations where the majority of teachers are NNS.

The concept of World Englishes and Its consequences for English language teaching (ELT) may be obvious to TESOL specialists, but the general public—including students and their parents—may find these concepts strange, out of the ordinary, or even contentious.

To successfully implement curriculum modifications, educators and administrators must not only understand public attitudes toward English dialects and potential resistance but also take steps to ease any worries they may have. Administrators and instructors can talk about curriculum innovations and strengths at conference days, open-campus events for prospective students, or Parent-Teacher Association meetings at many schools.

These chances can be utilized to demonstrate that adding World Englishes to the current repertory and, consequently, improving the curriculum, does not imply that native English variants should be disregarded or substituted with less-than-ideal ones in English courses.

To prepare their students for using English in international contexts, Ghanaian language teachers must assist their students in learning about English speakers who use the language differently from the norms portrayed in the majority of commercial ELT resources. Cross-cultural curricula should take this into

account for learner-led research that uses online, self-access, and library resources to successfully engage students and encourage critical reflection on global Englishes.

The Ministry of Education's Ghana Education Service (GES) ought to incorporate regional/local English dialects, local cultures, pluralistic approaches, and the idea of Wes into the curriculum.

The concept of Wes and related pluralistic approaches will be covered in trainings, seminars, and workshops for teacher professional development that the Ministry of Education will design and conduct using GES.

In order to interact with the organizers of WE-related conferences, seminars, and other teacher professional development activities in other nations, the Ministry of Education should use GES. Ghanaian teachers should be sent to these programs to increase their understanding of Wes and associated disciplines.

Understanding how to employ action research in the classroom is essential for all educators. Through GES, the Ministry of Education should organize, develop, and implement teacher training programs, conferences, and seminars on Wes and related approaches to teaching English writing to working teachers.

Lastly, when choosing the appropriate teaching resources for Ghanaian schools, it's critical to take into account the pupils' backgrounds and the environment in which they will be utilizing English. Teachers can make as many changes as they like to a required textbook from the inner circle countries to better suit the needs of their pupils.

Ethical Statement

This study, which involved human subjects, was reviewed and approved by Ghana's Dambai College of Education's Ethical Research Committee. Each participant provided written informed permission prior to study participation. Additionally, the book has been proofread to increase its language clarity and accuracy.

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Conflict of Interest

Regarding the publishing of this work, the authors affirm that they have no conflicts of interest.

Authorship Contribution Statement

Wumbei: Conception of research idea, formulating research questions and drafting the manuscript. Adukpo: Research design, data collection, and analysis, formatting, citations, and compliance with ethical research standards. Gaaku: Review of relevant literature, developed the theoretical framework, editing and proofreading. Joana Emefa Adansi: responsible for editing and proof reading of the manuscript to ensure clarity, coherence, and language accuracy.

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Professional Development Needs Assessment of Hotel Workers in the Ho Municipality

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Abstract

This study assessed the Ho Municipality hotel staff's needs for professional development. Hotel employees' professional experiences, training programs put in place to further their career growth, their training needs, and operational challenges are all examined. Utilising a cross-sectional descriptive survey design, a quantitative approach was used. 200 hotel staff members were chosen at random from the Ho Municipality using the random sample technique. The instrument used to collect the data was a questionnaire. Descriptive statistics were used to analyse the data. According to the survey, most hotel staff in the area being studied had neither formal education nor industry-relevant professional training prior to working in the hostel sector. Among the training programs provided to employees were classes on how to style rooms, make beds, fold towels, and prepare different dishes. In order to ensure optimal performance, the report suggests that hoteliers arrange training for staff members who lack hotel service knowledge through the area organisation. Hotel employees should receive frequent training from Ghana Tourism Authority officials.

Keywords: *Assessment, Evaluation, Staff Development, Hotel Workers*

Introduction

Ghana's hotel industry is comparable to more general patterns seen throughout Africa. The mining, oil and gas, and tourism industries have all expanded recently, contributing to the industry's notable growth (Acquaful et al., 2016). As a result of this expansion, the number of international visitors to the nation has increased, including tourists, business colleagues, and experts. In order to meet the growing demand, new hotels are being built, and existing ones are being improved as a result of the increase in foreign visitors. In the present situation, hotels are gradually moving away from their formerly unofficial operations, which has increased competitiveness amongst industry players. However, Sarkodie and Adom (2015) emphasised that having a skilled and competent personnel is essential to succeeding in the fiercely competitive hotel sector. This emphasises how crucial it is for Ghanaian hotel companies to invest in their staff members' professional development.

The research was guided by the motivation theory proposed by Herzberg et al. (1959). This theory highlights the importance of individuals or groups acquiring training to develop their skills. Herzberg et al. (1959) aimed to clarify the factors that motivate people by acknowledging and addressing their specific needs, desires, and the objectives they strive to achieve.

The study's foundation is the idea put forth by Herzberg et al. (1959), which supports the necessity of professional development for hotel staff in the Ho Municipality's hotel business.

Hotel companies in Ghana must have qualified workers to survive and sustain a strong presence in the fiercely competitive market (Asirifi et al., 2013). Other hotel businesses must put professional development programs in place to raise the technical proficiency of their staff in order to satisfy industry demands and expectations. This is because the arrival of multinational hotel firms has raised the standards of professionalism and service in the country (Sarkodie and Adom, 2015). However, the lack of comprehensive training and development programs targeted at improving the skills of hotel employees is a significant issue in the local hotel industry, according to Acquaful et al. (2016).

Because of the frequent staff turnover in the hotel sector and the expensive expenses of establishing professional development programs, Rotich et al. (2012) state that there are significant concerns regarding who should be in

charge of employees' professional development. As a result, businesses depend on these skilled workers to meet service quality standards and achieve organisational expansion objectives, even though employees need this kind of professional development to remain competitive in the market (Perman & Mikinac, 2014). However, Horner (2018) contends that in order to increase their ability to meet industry standards and customer expectations, hotel companies should concentrate on how they can effectively manage the risks involved in investing in the professional development of their employees.

Employee professional development is rather prevalent among both large domestic hotel companies and foreign hotel organisations, according to Perman and Mikinac (2014). But for a lot of Ghanaian small and medium-sized hotel businesses, it is a big problem. Given the growing competition in the industry or the possibility of having their market share taken by big, international hotel firms, Sarkodie and Adom (2015) proposed that professional development for staff members has become crucial for local hotel businesses. Therefore, it is the responsibility of the small and medium-sized domestic hotel businesses to improve the professional growth of their employees. But according to Acquaful et al. (2016), determining the professional development needs of employees in small- to medium-sized hotel enterprises is a significant difficulty because of their varied backgrounds.

Business organisations must adopt a variety of professional development strategies because no single strategy to employee professional development is effective for all employees, according to Acquaful et al. (2016). Employers should provide a range of standard workshops, seminars, and workshops for employees to select from (Horner et al., 2018). Therefore, in order to balance motivation and activity, according to Nischithaa and Narasimha (2014), staff development initiatives ought to provide opportunities for involvement.

A wide range of facilitated learning opportunities are covered by the professional development program, including conferences, skill-building workshops, college degrees, organised, standardised subject seminars offered during in-service days or training sessions, and casual conversations with coworkers about job operations that are incorporated into daily tasks (Desimone & Garet, 2015). Consequently, numerous organisations are implementing professional development initiatives to cater to the diverse demands, abilities, and knowledge of their workforce.

One strategy to create a workforce that is more adaptable in light of new developments in technology or industry trends is through training (Otoo & Isaac, 2018). Additionally, according to Abdul et al. (2011), training is any procedure or activity meant to enhance a worker's abilities, dispositions, comprehensions, or performance in their current or future roles. Usually, the goal of training programs is to increase the efficiency of an organization's entire staff. It is therefore the structure that, in theory, satisfies organisational goals while permitting personal development. Employee development and professional progress are the main focal points, and as such, a lot of emphasis is placed on enhancing individuals' abilities and potential (Kennedy, 2016). Developing skills and knowledge through training is a management technique that can enhance employee performance, effectiveness, and results—and ultimately, those of an organisation (Chu et al., 2016). This approach helps employees to enhance their skills and competencies to meet the need of the organisation and customers.

Training activities include preparing both on and off the job. Coworkers and the immediate superior provide on-the-job training. It can be informal or formal, and it usually involves teaching the worker the best ways to do the task (Singh et al., 2013). On the job training offers the avenue for major benefit to the worker the opportunity for easy teaching Without the inefficiencies of trial and error, a staff member has the opportunity to do a work correctly (Nischithaa and Narasimha, 2014). On the other hand, off-the-job training takes place somewhere other than the workplace. According to Acquaful et al. (2016), it is frequently employed when individuals require instruction in non-technical subjects or activities including leadership, motivation, and effective communication. The best people to oversee these learning domains are trainers who instruct both theory and practice.

Given the importance of professional development for boosting organisational growth and competitiveness, identifying the traits that contribute to successful staff development is just as important as the process itself (Timperley, 2011). Shaffer and Thomas-Brown (2015) asserted that employees have the greatest influence on organisational growth and performance, creating effective professional development for them is a positive step. According to Templeton and Tremont (2014), effective and thorough professional development has been shown to improve employees' knowledge and alter organisational

procedures. Good professional development is ensured by many qualities, including coherence, length, partnership, job-embedded, active learning, and content focus.

Although the hotel industry acknowledges that educational institutions are performing well in teaching a variety of professionals for the business, there are a number of issues and variables affecting the professional growth of those employed in the sector (Acquaful et al., 2016). Adler and Rigg (2012) claim that most providers teach the incorrect people in order to obtain a training subsidy because they lack sufficient and trustworthy instructions. Industry training would not address the problem of training and skill gaps, despite the fact that it might boost worker productivity and professionalise the sector (Bunakov et al., 2015).

Employee preparedness must be combined with other retention strategies. Hotels could effect changes like internal capacity building, regional succession planning, continuous marketing and networking with territorial authorities (Asirifi et al., 2013). Horner (2018) contends that even while these programs have certain advantages, it would still be challenging to find and keep qualified workers in an environment with low unemployment. Nischithaa and Narasimha (2014) asserted that the industry ought to modernize the hiring and training process by implementing a career advancement and structure, regardless of the overall state of the economy. Therefore, the sector ought to offer workers the chance to progress their careers via training, education, apprenticeships, and traineeships. Perman and Mikinac (2014) assert that such programs will result in more motivated, skilled, and devoted workers.

Rotich et al. (2012) state that although education and training provide new employees with the abilities needed. Often lack of work ethics, attitude, enthusiasm, desire, passion and reasonable opportunities (Rotich et al., 2012). Following participation in professional development programs, this has a major impact on hotel sector staff productivity. The fact that most coaches are not from the sector and are unable to accurately assess the degree of engagement and career development path of recently employed staff members is one of the drawbacks of the current training system (Zaitseva et al., 2016). Therefore, in the absence of appropriate screening standards, unfit people may be recruited, onboarded, and trained in the field. Training employees in the hotel industry could be more feasible if it were integrated into the company's

regulatory structure, according to Sarkodie and Adom (2015). This covers areas of public responsibility such job cover enforcement, general hygiene regulations pertaining to food storage, food and beverage service, basic first aid, hazard reduction techniques, and occupational health and safety.

Professional improvement is thought to be essential for empowering employees to perform higher-order tasks, operational difficulties can occasionally compromise the programs' ability to have the required effect on workers' output (Singh et al., 2013). In light of this, Sarkodie and Adom (2015) recommended that hotel firms assess these issues in order to determine the possible effects of their professional development programme on employees and create plans to lessen or deal with them. The difficulties in obtaining scholarship for further education, lack of accreditation for certain training programs and monotony of training programme. Other recommendation from Sarkodie et al (2015) was little industry to absorb trainees to practice while under training.

According to Horner (2018), the majority of hotel staff training programs concentrate on customer service, security, and food. Management personnel typically organise these training programs internally through coaching, induction, and orientation. It is uncommon for hotel staff to have the opportunity to participate in conferences, seminars, and workshops as a means of enhancing their professional development, according to Chu et al. (2018). This is partially because these training programs are expensive. However, staff dedication to the program's principles and employee morale might occasionally be impacted by the repetition of the training sessions. Bad working relationships sometimes do bring internal issues which should be considered while planning training programme else it may negatively influence the programme.

There is very little cooperation and collaboration that has been noted in the hotel industry (Perman & Minkinac, 2014). Workers in the sector are unable to communicate and formally exchange ideas and experiences to improve their capacity to operate in the industry due to a lack of teamwork. Sarkodie and Adom (2015) claim that hotel companies' fear of poaching is the reason for their lack of industrial cooperation. While these concerns are legitimate, Zaitseva et al. (2016) noted that efforts to establish industry standards to direct workers' actions are thwarted by a lack of inter-organizational cooperation.

Employees may be able to construct their career development path around the industry with the help of such standards.

The necessity of having competent and appropriate staff in Ho Municipality's hotels may help attract more guests to the sector. The evaluation of hotel employees' demands for professional development in the Volta Region, particularly in the regional capital, has lacked empirical support. The investigation is warranted given its potential to uncover the professional development and training initiatives employees took to expand the hotel sector in Ho Municipality.

Volta Region in Ghanaian has the potential grow the hotel industry. The region has many tourist attractions, like Afadjato, Wli waterfall, Lake Volta, Keta Lagoon; tropical beaches; Likpe-Todome ancestral caves and several forest reserves for ecotourism. As a result, the hotel industry in the region has the potential to support the tourism industry. Agotime Kente celebration (Agbamevorza) and the Hogbetsotso of the Anlo people are two examples of the numerous traditional festivities. All year long, many visitors patronize the tourist sites in the region from within and without the country to enjoy the attractive areas. The hotel industry in the region also becomes a place for accommodation and food to visitors to the area. To meet the needs and service demands of visitors, hotel business has to develop in response to the abundance of tourist sites available in the region. It is impossible to overstate the importance of employees' professional growth in this endeavour. This study looks at the steps the Ho Municipality's hotel enterprises have taken to improve the professional growth of its employees.

The study's goal was to evaluate the Ho Municipality's hotel employees' needs for professional development. Investigating the professional backgrounds of hotel employees in the Ho Municipality as well as the kinds of training programs designed to advance their professional growth were the goals of the study. The professional backgrounds of the hotel employees in the Ho Municipality were one of the study's research topics. What professional training programs were put in place to increase the hotel staff's capacity, furthermore?

Methods**Research design**

The research design used in the study was descriptive. According to Bluman (2013), a descriptive research design includes observing a subset of the population, describing the current state of affairs, examining the connections between different factors, and demonstrating the effects of the variables on one another without any interference or intervention. A cross-sectional approach was selected in order to collect data at a specific time and describe the needs for professional development of the hotel staff in the Ho Municipality.

The target population of the study

Participants in the study were employees of hotels in the Ho Municipality. Among them were staff members of guesthouses, lodges, and hotels. There were 782 hotel employees in the Ho Municipality, according to the Volta regional branch of the Ghana Hotels Association.

Sample and sampling procedure

Two hundred participants made up the study's sample size, which was established by examining the target population. Israel (2009) used the method $n = N(1 + Ne^2)$ to calculate the sample size, where n is the required sample size, N is the population (there are 782 hotel employees in the Ho Municipality), and e is the standard deviation (0.05). The formula states that, given the size of the population, the sample size should be 265. Nonetheless, two hundred hotel staff members consented to participate in the study. This indicated a 75.6% response rate. Two-star hotels make up the majority of the hotels in the Ho Municipality. More than 90% of the hotels in the Municipality were two-star enterprises, according to data from the Ghana Hotels Association's Volta Regional Branch. Because the study's sample strategy was restricted to two-star hotels, stratification was not used. Simple random selection was used to select a sample of the twenty-two-star hotels in the Municipality.

The lottery approach employed a straightforward random sampling process. The researchers were given a list of hotels in the Ho Municipality by the Ghana Hotels Association's Volta Regional Branch. The lottery method was used to write the hotel names on equal-sized pieces of paper and fold them into a tub.

To make sure they weren't in any specific order, the papers were mixed together for a while. The hotel's name and contact details were recorded, and the first draw was conducted without a substitution. Until all 20 hotels were sampled and their names were removed for ethical reasons, the procedure was repeated. The researchers planned to engage all 273 employees of the hotels in the sample in order to do a census. Two hundred (200) of them did, however, volunteer for the study. Some refused to participate, while others could not be reached because they had turned off their cell phones when the data was being collected.

Instrument

A questionnaire with multiple sections served as the data gathering tool. In order to improve the abilities of hotel employees, the questionnaire considered industry training programs and professional development courses. They were closed-ended enquiries. Twenty hotel employees who were not involved in the study pre-tested the questionnaire. As part of the pre-testing process, the questions, their quantity, and their word choice were reorganised. Following the pre-test, the instrument's Cronbach's alpha coefficient was 0.80, indicating its reliability in gathering consistent data for the study.

Data collection procedure

Google forms were utilised to gather data from the respondents for the study because some of them had hectic schedules. Google forms were used to make the data gathering process for the study more convenient. In order to collect data, the researchers arranged the sampled respondents' phone numbers and sent them Google Forms. Face-to-face interviews were used to help those who were illiterate. The researchers began by stating the background of the participants and the objective of the research. The researchers delivered an introductory letter for the data collection exercise to the respondents by email, WhatsApp, or any other electronic media that was convenient for them in an effort to reassure them utilizing Google Forms.

Prior to involving the research participants in the study, the researchers obtained their consent. In order to arrange a suitable time for the data gathering exercise, the researchers also permitted the respondents to be interviewed. Making ensuring the responders were content and at ease with the exercise was the goal. The researchers honoured the timeframes to do the interview

after the appointment time was set. The researchers posed the query and verified that the respondents had provided the right answers.

Ethical considerations

Assuring respondents of their privacy and response confidentiality, as well as getting their consent before involving them in the data collection procedure, were the majority of the ethical issues brought up in the study. Therefore, neither the names of the hotels nor the personal identities of the respondents were gathered for the analysis. As part of the ethical considerations, the researchers also followed health and safety procedures to make sure that the participants in the study were not subjected to any health concerns. In order to prevent the exercise from interfering with the respondents' hectic work schedules, appointments were scheduled to be convenient for them.

Data analysis

To prevent duplicate entries, unique identification numbers were assigned to the research instruments. The data was cleansed to guarantee correctness. The descriptive statistical methods that were utilised to analyse the data were pie charts, bar charts, frequencies, and percentages. These descriptive statistical tools were used to assess research objectives one and two.

Results

Hotel employees' professional experiences

Taking into account a number of variables, including gender, age, department of service, academic specialisation, job designation, and years of experience in the hotel business, this section provides the results of the professional backgrounds of hotel employees in the Ho Municipality., and educational attainment. The results in Table 1 show that women made up most of the respondents (61.5%), while men made up 38.5 percent.

Table 1: Demographic characteristics of respondents

Characteristics	Frequency	Percentage
Gender		
Male	77	38.5
Female	123	61.5
Age (years)		
Below 20	23	11.5
20 – 29	72	36.0
30 – 39	61	30.5
40 – 49	27	13.5
50 and above	17	8.5

Source: Field survey (2020)

Of the respondents, 11.5% were under the age of 20, 36% were between the ages of 20 and 29, 30.5% were between the ages of 30 and 39, and 13.5% and 8.5% were between the ages of 40 and 49 and 50 and older, respectively, according to Table 1. The respondents ranged in age from 17 to 69, with 43 representing the middle age range. The findings demonstrated that individuals in the economically active age group controlled the hotel industry. With a standard deviation of 3.2, the respondents' average age was 34.7 years. According to the poll, the majority of respondents were between the ages of 20 and 39. This suggests that the hotel business appeals more to young people. In order to draw in customers, the hotel industry's fast-paced environment primarily demands young, vivacious employees that can deliver effective and efficient customer service (Rotich et al., 2012).

This section also examined the educational attainment of hotel employees in the Ho Municipality. Final figures are shown in Figure 1. A basic level of education was completed by 31.5% of respondents, senior high school (SHS) by 45%, and university education by 23.5%, according to Figure 1. According to the findings, every respondent has completed some kind of formal schooling. A question concerning the respondents' academic specialism was asked as part of the study's analysis of their educational characteristics.

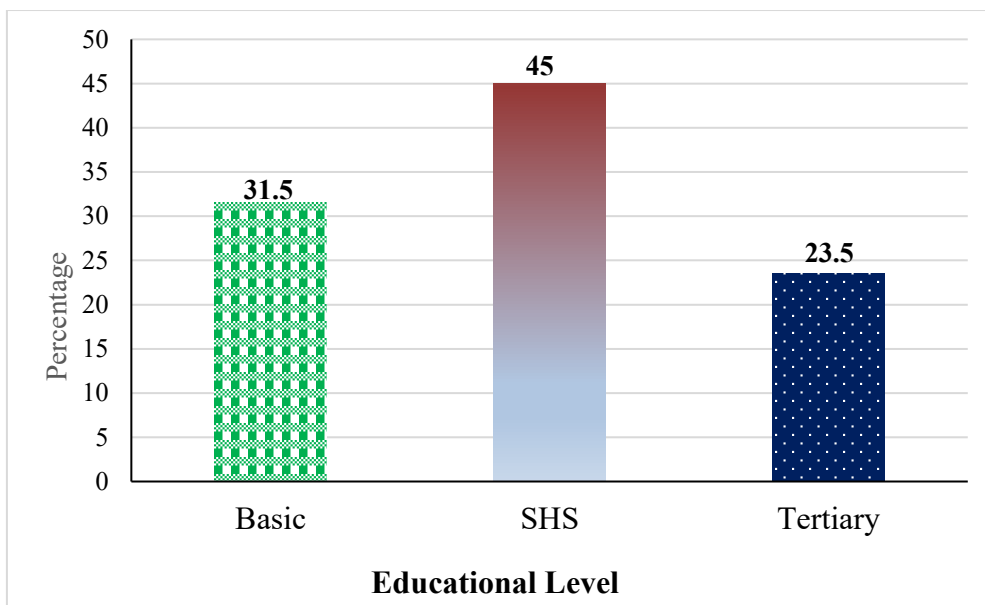


Figure 1: Education level

Source: Field survey (2020)

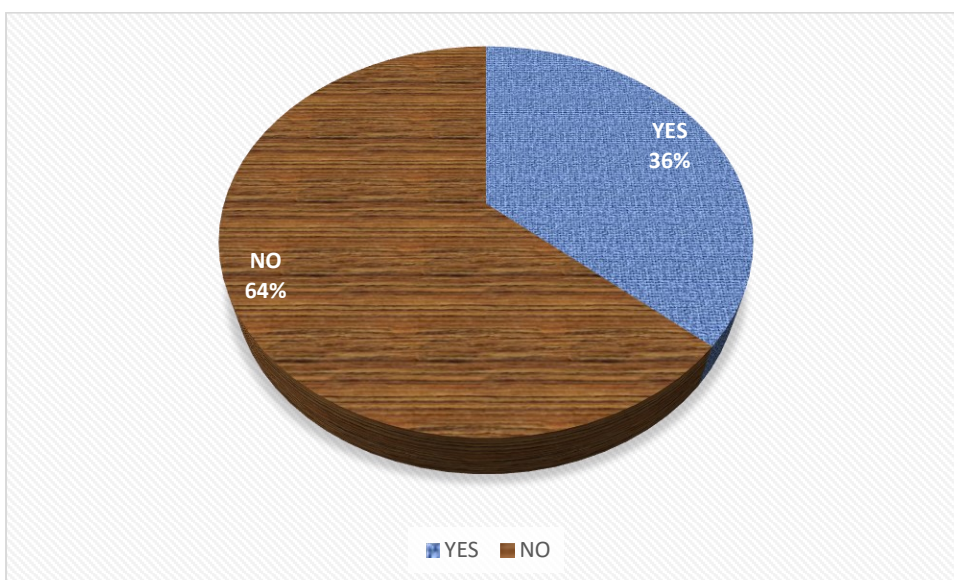


Figure 2: Academic specialisation

Source: Field survey (2020)

The pie-chart indicated that most of the respondents (64%) did not have specific academic qualifications that specialized in hotel services while 36%

of the respondents lacked academic expertise in the hospitality sector. Perman and Mikinac (2014) state that since the hospitality sector employs people from a variety of professions, the lower proportion of respondents who lacked a speciality may also have a role in the sector. The majority of academic specialisations in the hospitality sector focused on hospitality management and catering. This supports the claim made by Rotich et al. (2012) that the academic community has not given the majority of hospital industry departments adequate attention in order to support the development of employees' intellectual capacity. The different departments the respondents work within the hotel surveyed has its result presented in Table 2.

Table 1: Operational department

Departments	Frequency	Percentage
Administration	31	15.5
Transport	12	6.0
Safety and security	19	9.5
Technical	16	8.0
Restaurant Food and beverage	68	34.0
Sanitary	42	21.0
Others	12	6.0
Total	200	100.0

Source: Field survey (2020)

Table 2 shows that the food and beverage departments of the hotels employed 34% of the respondents, followed by the sanitary departments (21%), the administrative departments (15.5%), and the safety and security departments (9.5%). The results showed that food and beverage services accounted for a significant portion of the hotels. This was due to the fact that almost all hotels featured a food and beverage section that catered to guests. This illustrates the significance of catering for hotel services. Another item discussed in this area was having any necessary professional training in the hospitality industry before entering the business. This was essential for assessing the level of skill of individuals employed in the hotel industry.

Training programmes organised for hotel workers

The study's second objective was to examine the training programs intended to promote hotel staff members' professional development in the Ho Municipality. The type of training programs the employees had participated in, how the employer assessed the employees' training needs, the lessons learnt from the training programs, and the extent to which the training programs had advanced the professional development of hotel industry employees were among the many factors considered in this section. Table 3 displays the findings.

Table 3: Responses on training programme

Training Programmes	Frequency	Percentage
Vocational skills	92	46.0
No specific skill	89	44.5
Customer service	44	22.0
Quality of service	31	15.5
Hotel administration	19	9.5
Technical	13	6.5

Source: Field survey (2020)

According to Table 3's findings, 44.5% of respondents had never taken part in any hotel staff training programs, 22% had taken part in customer service training, 15.5% in quality-of-service training, and 9.5% and 46%, respectively, had taken part in hotel administration and vocational skills training. Folding towels, decorating rooms, making beds, and cooking continental food were among the vocational talents discovered. The length of the training programs was another problem covered in this section. Table 4 presents the findings.

Table 4: Training Duration

Duration	Frequency	Percentage
in a day	18	16.2
for a week	41	36.9
for a month	30	27.0
more than a month	22	19.9
Total	111	100.0

Source: Field survey (2020)

Table 4 shows that 16.2% of the participants stated that their training lasted less than a day, 36.9% completed it in a week, 27% completed it in a month, and 19.9% completed it in a few months. Of the respondents to the poll, the majority (64.9%) said that the training programs were in-house, while 35.1% said that outside facilitators or trainers performed their training sessions. On the question financing of further training in hospitality industry, the result is presented in Figure 3.

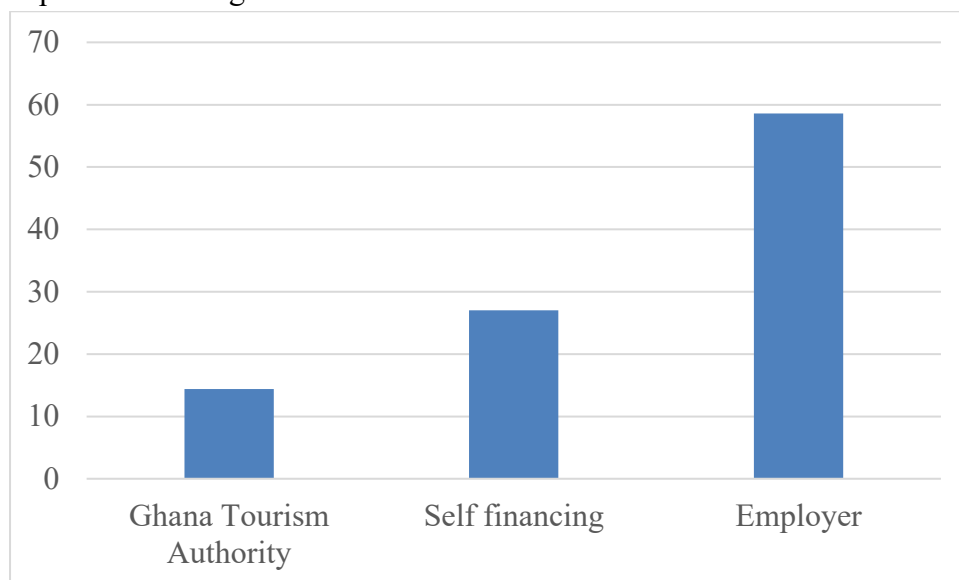


Figure 3: Funding source of training

Source: Field survey (2020)

The result in Figure 3 shows that 27% of the respondents acknowledged that they had covered the cost of their own training programs, 58.6% said their employers had covered such costs, and 14.4% said the Ghana Tourism Authority had covered those costs.

The method by which the employers determined the workers' training needs was another matter covered in this section. Table 5 presents the findings.

Table 5: Responses on the training needs respondents

Approaches	Frequency	Percentage
Do not know	32	28.8
Interviewing	18	16.2
upon recommendation	11	9.9
Complaints from customer	39	35.1
Personal complaints	52	46.8
Observation from Employer	71	64.0

Table 5 showed that 28.8% of respondents did not know how their employers determined their training needs, 16.2% said that their employers used interviews, 9.9% said that employee performance review recommendations were used, 35.1% said that guest complaints were used, and 46.8% and 64% said that their complaints and employers' observations were used, respectively. The respondents were asked to identify or tick the items to indicate what they had learnt from the training programs. Table 6 presents a summary of the findings.

Table 6: Lessons learnt from the training programme

Lessons	Frequency	Percentage
Improved ways to attend to guests	85	76.6
Improved administrative procedures	12	10.8
Enhanced store management	17	15.3
Learnt new security arrangements	11	9.9
Learnt the preparation of new cuisines	40	36.0

Table 6 revealed that while 9.9% and 36% of the respondents, respectively, learnt about new security arrangements and new cuisine preparation, the majority (76.6%) of the respondents said the training had improved their ability to serve guests, 10.8% said it had improved their administrative procedures, and 15.3% said it had improved their store management skills. The degree of satisfaction that training recipients had with the programs was another issue that was taken into consideration under this clause. Figure 4 displays the findings.

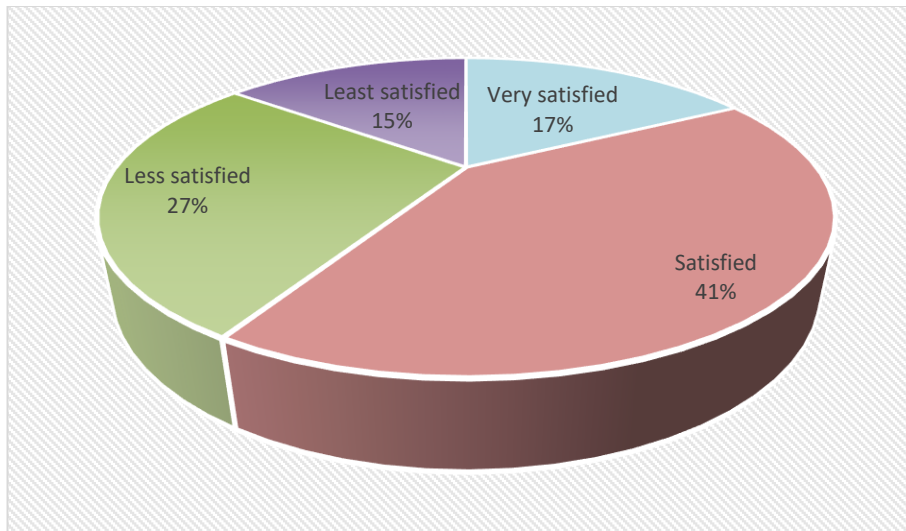


Figure 4: Satisfaction with training Programme

In order to increase the training program's effectiveness in the Ho Municipality with respect to hotel employees' professional development, respondents were asked to list the aspects of the training programs that they felt needed improvement. The results are summarized in Table 7, and Figure 5 shows that 17.1% of training recipients said they were extremely satisfied with the program, 41.4% said they were satisfied, and 27% and 14.4% said they were less and least satisfied, respectively.

Table 7: Areas for training needs

Call for training	Frequency	Percentage
Training based on workers' need	45	40.5
increase training duration	47	42.3
Training should be formal	52	46.8
Trainers should award certificates	66	59.5
Resource persons for training should come from external	30	27.0
Training should be funded by employers	25	22.5

The training needs of the participants varied as presented in Table 7. Most of the respondents (59.5%) wanted certificate to be awarded after their training

programme and the least number 25 representing 22.5% wanted the training to be funded.

Discussion of Results

The study was to evaluate the needs for professional development of the hotel employees in the Ho Municipality. The findings showed that the majority of those surveyed did have experience working as hotel managers in the Ho Municipality. The age range of 20 to 39 years old was the most prevalent among the respondents' age characteristics. Being a service sector, the hotel industry needs proactive individuals to offer customers effective and efficient services. Asirifi et al. (2013) state that young people dominate the hospitality sector because they are more up to date on the newest technical developments and can offer visitors high-quality, efficient services. Younger people were more erratic in their job search, according to Acquaful et al. (2016). Accordingly, Acquaful et al. (2016) proposed that the hospitality sector facilitates young people's easy access to the workforce and uses these experiences to land jobs in other fields. Therefore, it was suggested by Acquaful et al. (2016) that the age distribution of the personnel in the hotel sector be balanced.

Additionally, the study found that over half of the participants (63.5%) had prior academic experience in the hospitality sector. According to Nischithaa and Narasimha (2014), the hotel industry has a variety of functions that draw in workers from other industries who are not directly specialized in the field. The fact that people without formal training in the field predominate in the hotel industry in the Ho Municipality lends credence to this. Thus, additional specialists were drawn to the hospitality sector by ancillary services like banking, transportation, and security. However, Perman and Mikinac (2014) asserted that professional development programs are always necessary for those from other professions who work in the hotel business in order to help them understand the sector's service values and quality requirements.

The findings demonstrated that a sizable fraction of the hotels were dedicated to food and beverage services. The significant number of employees from the food and beverage department was brought on by the necessity for a big number of workers as kitchen staff to prepare various cuisines and waiters and waitresses to serve the food to guests. Additionally, the large number of hotel

housekeeping employees demonstrated the hoteliers' primary responsibility for maintaining the cleanliness and upkeep of the establishments' common areas and facilities. Additionally, the housekeeping staff maintains the guest rooms and arranges them to appeal to visitors. Among the technical staff were carpenters, plumbers, and electricians. However, it was discovered that some of the hotels only hired technical experts when their skills were required rather than having them on staff all the time. This was done in an effort to lower the hotels' operating expenses. However, because some of the technicians might not always be available to cater to the hotels' demands, it could also cause some hassles for the guests. It was also discovered that several of the hotels hired any available technicians in town rather than having permanent specialists.

Even though such a system was effective in saving the hotels some money, it could pose a serious risk to the hotels' operations because certain employees may not fully comprehend the concepts underlying earlier work completed by others, which could result in the introduction of risks into the hotel operations. To make their hotel services a complete package and increase client comfort, several hotels, for instance, provided additional auxiliary services. The various services that the hotels provide show how much complementarity exists in the hospitality sector, as participants offer lodging, catering, and tourism services to visitors. However, Sarkodie and Adom (2015) state that hoteliers' ability to offer full hospitality services depends on both their financial and technological capabilities. To put it another way, hoteliers need to hire technical staff to handle some of these services internally and make sure they have the necessary space and amenities to do their jobs well. Nevertheless, the hotels' financial resources were primarily responsible for hiring such staff and setting up the necessary equipment and space.

The findings supported the claim made by Sarkodie and Adom (2015) that because the hospitality industry is still developing, its core services—which are offered by the majority of hospitality firms—need to be supplemented by the services of people from other professions. Before entering the hospitality industry, employees received professional training through a variety of programs, includes training programs, technical and vocational education, hospitality management, and apprenticeships. As a result, the majority of our past expertise came from managing restaurants and hotels.

The low number of workers having prior knowledge and training in hospitality services could pose a serious danger to the industry's survival and service quality, as the majority of employees in the sector require training to comprehend the profession. Furthermore, it's possible that a small percentage of the municipality's population was eager to dedicate their careers and training to the hospitality industry, given the low level of prior knowledge and training among its employees. The lack of possibilities for people to register in training programs in the hospitality industry to improve their abilities and prepare for the area is another factor.

A lot of the hotel staff were hired formally for different kind of work, majority of respondents from the other departments were recruited through the informal process. According to the study's findings, the majority of participants (68.5%) obtained their jobs through unofficial channels, such as recommendations from others or relationships with the owners. This was because many of the administrative workers had advanced academic certifications from different professionals. The identified professional were accounting, administration, hospitality and human resource management. Meanwhile majority of the employees in the other hotel sections lacked higher academic qualifications in their respective fields.

The current result asserted with the earlier study of Rotich et al. (2012) which indicated that recruiting employees through informal recruitment procedures prioritises relationships and altruistic factors over professionalism and competence, which are not scientifically proven to ensure the necessary abilities, commitment, and dedication required for high standards of service quality. Rotich et al. (2012) state that the informal hiring procedure in the hotel industry is primarily linked to the higher upfront costs of training new hires to ensure they fully comprehend the industry's principles and can deliver high-quality services that will increase the competitiveness of hospitality businesses in the sector.

The findings also demonstrated that while workers in the economically active age cohorts who were middle-aged to upper-aged were willing to stay in the industry, individuals in the lower age cohorts were hesitant to dedicate their professional careers to the hotel industry. Younger employees were therefore less inclined to dedicate their professional careers to the hotel industry. According to Horner (2018), concerns about compensation or an appropriate

human resource management system, such as a well-designed promotion system, decent working conditions, and guaranteed pension plans comparable to those in other sectors or industries, may be the cause of employees' reluctance to dedicate their professional careers to a specific industry. It is implied that the younger employees thought that opportunities in other businesses and career sectors were better than those in the hotel industry. This indicates that in order to attract and retain younger employees and support their further professional growth in the industry, hoteliers need enhance their human resource management system.

According to the findings, staff training programs mostly focused on training in customer service, hotel management, and vocational skills. According to the report, a sizable percentage (44.5%) of the hotel employees in the Ho Municipality had not taken part in any training courses to advance their careers. The sector's employees' professional growth and service quality are probably going to be impacted by this. Regular training is necessary for business organisations to help employees develop their technical and professional skills so they can provide the needed level of service quality (Abdul et al., 2011). Acquaful et al. (2016) also suggested that regular training for workers enable companies to introduce workers to new technology and emerging forms of accomplishing job duties. However, the study discovered that some of the employees had benefited from several hotel industry training programs. Regarding the vocational skills training, it was discovered that the employees were learning how to cook various dishes, make fashionable towels, arrange beds, and design rooms. Some of the respondents have the opinion that they had technical skills training from the National Vocational and Technical Institute as well as training and certification from the Electricity Company of Ghana. The investigation discovered that some hotel administrators had gone through retail management, accounting, and marketing courses as part of the hotel administration training programme.

According to the report, hotel operators trained their staff to increase their capacity for providing high-quality service by utilising both internal and external expertise. In order to preserve service quality standards, organisational managers can transfer the operational culture from seasoned employees to less seasoned ones by using internal actors to conduct training programs for staff members (Bautista and Ortega-Ruiz, 2015). However,

Capps and Crawford (2013) suggested that because in-house training programs are primarily utilised by the facilitators and do not provide certifications, employees typically do not take them seriously. However, Bautista and Ortega-Ruiz (2015) contended that when stringent policies and packages are in place, internal training programs are highly successful because the facilitators are aware of the employees' operational difficulties and shortcomings and provide training tailored to their individual problems. External training programs are primarily designed to introduce participants to new trends in quality service delivery and assist in certifying personnel for their engagement in certain job responsibilities and duties, according to Desimone and Garet (2015). It follows that the Ho Municipality's hotel employees' professional growth may be enhanced by the implementation of training programs from both internal and external sources.

The findings demonstrated the dedication of different stakeholders (employers, employees, and the Ghana Tourism Authority) to enhancing the professional abilities of hotel industry workers in order to guarantee ongoing expansion and advancement. As a result, the fact that most of them had their training programs funded by their employers showed how dedicated hoteliers were to helping employees advance their professional abilities. The results also showed that some of the staff members were committed to advancing their careers for the sake of the hotel sector. According to the report, the majority of employees who funded their own professional development programme were those that needed more certification to boost their ability or obtain official approval to carry out specific tasks and responsibilities, such as managerial and electrification duties.

The capacity needs of both employees and employers' demands for high-quality services are better met by training programs that stem from scientific processes and engagements, such as performance appraisal procedures and negotiations for each party to agree and accept the necessity of participating in specific training programs (Desimone and Garet, 2015). The findings indicated that employers used a variety of methods to determine the training requirements of employees in the hotel industry. Through the use of employee performance reviews and interviews, employers show a two-way approach by involving their employees in the decision-making process about training programs.

The findings demonstrated that every employee who took part in training programs in the industry was better equipped to deliver higher-quality services. It follows that training initiatives positively impact employees' capacity building and professional growth in the hotel sector. These demonstrates that the more training programs like these are developed for staff, the more capable they will be of providing guests with excellent service in the hotel industry. According to the research, the majority of training responders (58.5%) were satisfied with the training programs provided in the hotel business. The Ho Municipality's hotel staff will be motivated to learn a lot from the training programs due to their level of satisfaction, which will benefit their professional growth.

Most training participants in the hotel industry (59.5%) recommended that participants receive certificates from the program's organisers. To put it another way, the training recipients desired that the programs be formalised so that they could receive certificates for their involvement. Therefore, the issuance of training certificates serves as evidence of their ability to carry out certain job duties in the industry, which may allow them to advance in the field in comparison to their peers who did not take part in such exercises.

Conclusion and Recommendations

Any industry's growth and progress depend on professional development. In order to maintain the required degree of service quality, it aids in enhancing employees' technical competency in the professional methods and principles of the industry. In the fiercely competitive hotel industry, retaining the highest levels of professionalism and service quality is essential to drawing in customers and growing hotel firms' market shares. The travel and tourism industry, as well as cross-border trade between Ghana and Togo, are significantly impacted by hotel enterprises in the Ho Municipality. This brought into question the professional development of the hotel employees in the Ho Municipality, which could allow them to carry out such crucial tasks to support the growth and development of the industry. As a result, the study evaluated the Ho Municipality's hotel employees' professional development needs.

In general, the majority of employees in the Ho Municipality's hotel industry lacked academic specialism in the field and had not received any industry-

related professional training before entering the field. This was caused in part by the fact that the majority of the sector's employees interacted with one another informally through personal connections as opposed to professionally through background checks and capacity evaluations. The hotels offered training programs to their employees as part of their endeavours to enhance their professional abilities. These included instruction on designing rooms, making beds, folding towels, and preparing various meals.

Although the training programme had significant impact on the professional development of hotel employees, the study also discovered that some technical weaknesses remained among the employees. The flaws that were found were a lack of professionalism, an inability to cook several continental foods, and a lack of administrative skills., a lack of confidence in their job duties, and an inability to communicate in English and French so that they could interact with foreign guests effectively. Additionally, some employees struggled with insufficient logistics to function efficiently, a heavier task because of the small workforce, and insufficient funding for consumables.

According to the report, regular in-service training should be conducted to keep staff members informed about the best ways to serve their guests. In order for employees who have not taken part in any training programs throughout the years to stay up to date on the latest developments in hotel operations, hotel operators could also host training seminars. As more individuals in the Municipality seek hotel services, the regular training that hotel employees undergo may assist draw more guests to the establishments and maybe boost their revenue.

Ethical Statement

All the respondents were provided with informed consent to participate in the study.

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Conflict of Interest

The authors declare no conflict of interest.

Authorship Contribution Statement

Apakah: concept and design, data acquisition, drafting manuscript, funding acquisition and administration, technical or material support, supervision. Ankrah: data analysis / interpretation, funding acquisition. Ashun: drafting manuscript, critical revision of manuscript, funding acquisition and administration, technical or material support, supervision. All authors have read and agreed to the published version of the manuscript.

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Generative AI Statement

The authors made minimal use of the AI tool (ChatGPT), solely for the purpose of clarifying the English language.

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Mathematics Teachers' Electronic Readiness towards Information and Communication Technology Integration into the Teaching and Learning of Mathematics

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Abstract

This study explored the electronic readiness of mathematics teachers towards the integration of ICT in the teaching of mathematics. Three research questions guided the study. Using descriptive research design, data were collected from 118 senior high school mathematics teachers sampled from six senior high schools in the Cape Coast Metropolis. The data were obtained using closed ended questionnaires. The study findings revealed that the mathematics teachers had the perceived knowledge to support mathematics learning activities with electronic devices. The teachers expressed positive perceptions towards the use of electronic devices and ready to integrate electronic devices in their mathematics teaching practices.

It is recommended that stakeholders of Ghanaian senior high schools ensure that mathematics teachers have technology-based in-service trainings that will continuously enrich their digital knowledge for effective pedagogical practices. The implications of the findings are discussed.

Key words: *Digital Knowledge, Electronic Readiness, Electronic Devices, Digital Literacy, ICT Integration, Mathematics Teachers*

Introduction

The importance of technology in recent times in the educational sector cannot be overemphasised. Governments around the world are investing extensively in ICT integration in education to increase the acquisition of knowledge and skills to meet the demands of modern knowledge-based economies (Gyaase & Takyi, 2014). The use of ICT in the classroom is very important for providing opportunities for students to learn to operate in an information age (Bingimlas, 2009). In Ghana, the integration of technology into the teaching and learning processes seems to be making strides in the tertiary education. However, the case appears not to be the same at the pre-tertiary education levels (Mensah, Poku, & Quashigah, 2022). The low level of technology integration into the teaching-learning processes at the Ghanaian pre-tertiary level raise concerns about teacher readiness, requisite ICT skills, resource availability, and the teachers' Technological Pedagogical and Content Knowledge (TPACK) (Mensah, Poku, & Quashigah, 2022).

The understanding and application of ICT has become an unavoidable necessity due to its widespread adaption and application in industries, businesses, engineering, and general organisations. Consequently, the readiness of teachers to use electronic devices in the classroom for teaching and learning is critical. The role of digital technologies such as laptops, mobile phones, projectors, and digital televisions to foster development has an increasing relevance, which could explain government efforts and demands on teachers to integrate technology into their classroom practices to enable students experience and realise the potentials of these devices. Effective adoption of technology into the mathematics classroom may depend on multiple factors including training, self-efficacy, perceptions, skills, resources availability, preparedness, TPACK, and readiness.

Research suggests that mathematics teachers demonstrate positive perceptions about integrating technology into their instructional practices (Boni, 2018; Hudson & Porter, 2010). Boni (2018) revealed that teachers' use of technology-based teaching approaches improves their pedagogical practices and skills. It is reported that 114 mathematics teachers expressed how the affordance of electronic devices positively transformed their teaching methods (Hudson & Porter, 2010). Onyia and Onyia (2011) discovered that correlations exist between perception of self-efficacy and technology adoption among teachers. The self-efficacy of the mathematics teacher positively correlates to their intention to adopt technology integration as an alternative instructional strategy. Broni (2018) established that the kind perception of teachers about technological devices determines how effective these electronic devices would be adapted and employed. This launches the premise that, the perception teachers have about electronic devices matter in the quest to integrate ICT into mathematics teaching and learning.

At the higher teacher education institutions in Ghana, pre-service teachers are trained and motivated to integrate ICT into the teaching of mathematics (Mensah, Poku, & Quashigah, 2022). Despite the requisite training and positive interest of teachers to integrate ICT into the learning environments, many are constrained by lack of confidence, in-service training, continuous professional skills development, technical support, resources as well as technological infrastructure to carry it out effectively (Krause, Pietzner, Dori, & Eilks, 2017). Negative perception about the use of electronic devices could also diminish the interest and willingness of teachers to integrate ICT into their teaching. Therefore, teachers' digital knowledge on electronic devices, their perception about the usage of electronic devices and their readiness to integrate electronic devices into teaching cannot be ignored when considering the integration of ICT into teaching. It is noted that Ghanaian mathematics teachers graduate from well-established institutions with sufficient ICT resources (Gyaase, Gyamfi & Kuranchie, 2019). Thus, the teachers are well equipped with the necessary skills to use electronic devices to teach. However, few embrace the use of electronic devices in the classroom in the senior high schools. The ICT literacy of teachers in the pre-university schools in Ghana is high, but their utility of ICT to design and deliver technology-based subject contents to improve the learning experiences of the students is low (Gyaase, Gyamfi & Kuranchie, 2019).

It is replete in the literature about some factors hindering mathematics teachers' ability to consistently and appropriately employ technology in their teaching processes. Kirkok and Karanja (2018) outlined low availability of infrastructure (computer laboratories, computer hardware and software programmes) as hindering factors. Keong, Horani and Daniel (2005) reported lack of knowledge about ways to use ICT to enhance the curriculum, difficulty in integrating and using different ICT in a single lesson, and teachers not fully utilising the facilities available. They emphasised that the lack of knowledge about the electronic devices and the skills to use them are major setbacks to teachers in technology integration. It is conceptualised that the knowledge level of a teacher about electronic devices correlates and affects the extent to which a teacher can adapt and employ them into instructional activities (Agyei & Voogt, 2010).

Several in-service trainings have been organised by the Ghana Education Service (GES) for teachers to equip them with TPAC knowledge, with greater emphasis on technology integration into instructional practices. The higher teacher education institutions (University of Cape Coast (UCC) and University of Education, Winneba (UEW)) have rolled out teacher education programmes designed to train pre-service teachers to effectively design and implement technology-based lessons. These efforts by GES, UCC, and UEW suggest the need for teachers to be equipped with digital knowledge and skills for the integration of ICT into teaching. Mensah, Poku, and Quashigah (2022) posits that effective technology integration as an instructional practice depends on the teachers' digital knowledge on electronic devices, their perceptions and readiness to integrate electronic devices into the teaching process. The electronic readiness and digital literacy of teachers to integrate ICT using electronic devices is the focus of this study.

This study is therefore structured to determine the electronic readiness of mathematics teachers use ICT for instruction, in terms of their perceived level of digital knowledge, perception about electronic devices and their readiness to integrate the electronic devices into the teaching of mathematics. Hence, three research questions were proposed and answered in the study which include: 1) What is the perceived digital knowledge level of senior high school mathematics teachers? 2) How do senior high school mathematics teachers perceive their use of electronic devices in the teaching of mathematics? 3)

What is the perceived electronic readiness level of senior high school mathematics teachers?

Literature Review

Digital knowledge of mathematics teachers

Technology can serve as an asset as well as obstacle within a classroom setting. On one hand, it can help reinforce curriculum for students with different learning styles. Students and teachers alike can use electronic devices to access information or photos more quickly than with a textbook. On the other hand, electronic devices can also serve as a distraction when constantly within arm's reach (Van Braak et al, 2004). Understanding both sides of the debate is essential for teachers to maximise the benefits of technology in education for the next generation of students. Electronic devices are devices used for audio, video or text communications. This includes the use of computers, smartphones, calculators, projectors, electronic watches, tablets, or virtual reality devices (Chege, 2014). The effective use of electronic devices in mathematics education requires computer competence, digital knowledge and skills of the teacher to be brought to bear. Thus, the level of digital knowledge of the mathematics teacher determines the extent of success of technology integration into instructional practices (Agyei & Voogt, 2010).

According to Peralta and Costa (2007), teachers' confidence to integrate technology into their teaching practices depends largely on their level of digital knowledge. Teachers' confidence refers to their perceived likelihood of success on using ICT for educational purpose (Peralta & Costa, 2007). This shows that mathematics teachers should be knowledgeable and skilful to competently involve ICT in their teaching. As argued, if the mathematics teacher lacks knowledge about the various electronic devices, then there will be difficulties to confidently integrate them into teaching and learning. Tezci (2010) has it that irrespective of the technological knowledge level of teachers, their attitude about using electronic devices to support instruction has been positive.

Research that investigated the factors influencing mathematics teachers' readiness to use ICT in teaching revealed that computer training and availability of infrastructure are determiners of teacher readiness (Chege, 2014). The findings of Amuko (2015) suggest that low self-training towards development of digital skills is a hindrance to technology adoption in the

mathematics classroom. Other research indicate that the prerequisite digital knowledge of teachers based on their professional training is limited. Sheila (2016) reported that mathematics teachers are not well prepared to integrate ICT in teaching mathematics. Available statistics suggest 73.9% of teachers in 298 South African schools do not support their lesson activities with electronic devices, 64.8% have not attended any ICT based professional development, and some 55.5% expressed the need for technical support to integrate technology into their lessons processes (Saal, 2017). Saal (2017) recommended that the digital knowledge level of the mathematics teacher be determined in order to profile their needs for professional development.

In Ghana, Agyei & Voogt (2010) conducted research on ICT use in the teaching of mathematics which revealed that teachers' competency is affected by lack of knowledge about ways to integrate ICT into lessons and lack of training opportunities for ICT integration. Also, Mensah (2017) investigated the extent of ICT use among Ghanaian mathematics teachers in their instructional delivery. The findings revealed that mathematics teachers with extensive technology professional training were competent in the use of ICTs such as MS Word, MS PowerPoint, Excel and Calculator. Thus, professional training to develop the technical requisite knowledge of teachers can translate into higher competencies for technology integration.

Perception of mathematics teachers on the use of electronic devices

Electronic teaching is using electronic equipment/devices either directly or indirectly to support classroom learning activities. Electronic teaching methods do not have any boundary for the teacher or student (Nielit & Thaunuskodi, 2020). Teachers are still faced with the perplexing decision of whether to disallow or promote students' usage of technology in the classroom due to its double edge merits and demerits within the same context (Lam & Tong, 2012). Nevertheless, the perception of the mathematics teachers about the impact of technology potentially determines the likelihood of its usage in the classroom. Literature has stated several benefits when the learning activities of students are supported with technology. According to Keong, Horani and Daniel (2005), supporting mathematics lessons with technology encourages interaction among students to share their knowledge and skills; it causes educators to act as facilitators and the learning process becomes student-centred; fosters students' self-exploration, improves students' interest,

motivation and perceptions towards mathematics is enhanced; generates higher-level thinking skills among students; and encourages students to think about alternative strategies in solving mathematics problems.

The merits and demerits of technology on the teaching practices of teachers and learning experiences of students are potential factors that can influence the perception of teachers towards technology adoption into their teaching activities (Adedokun-Shittu & Shittu, 2015). A report on 114 Australian mathematics teachers indicates their positive perception towards technology-oriented lessons (Hudson & Porter, 2010). A logistic regression model on the beliefs, perceptions and knowledge of the teachers about technology integration confirmed perception and knowledge as significant predictor variables of technology integration.

Almekhlafi and Almeqdadi (2010) investigated on technology integration at United Arab Emirates (UAE) model schools using a mixed-method data collection process, consisting of focused group interviews and questionnaires. The results showed that teachers at both schools had positive perceptions towards ICT integration into their classroom activities. The study by Onyia and Onyia (2011) which sought to discover any significant correlation between perception of self-efficacy and technology adoption among teachers in Nigeria revealed similar results. The findings pointed out a positive correlation between teachers' self-efficacy and their integration of technology into instructional activities.

The perception about the electronic devices one may need in his/her work contributes to how effective he/she would be in the use of that technology. For this reason, the perception teachers have about electronic devices matter in the quest to integrate ICT into teaching of mathematics. Baya'a (2012) conducted a study on mathematics teachers' readiness to integrate ICT in the classroom, using 475 Arab elementary school teachers. The results suggest that about 70% of the participating teachers demonstrated positive perceptions of their competence in technology and technology integration, and positive self-esteem about the presence of technology in their mathematics classrooms. The research concluded that teachers are ready to integrate ICT into their teaching and learning practices and the learning processes of students.

Contextually, research on Ghanaian mathematics teachers' technology integration pointed out that the teachers demonstrated positive perceptions

about the use of electronic devices in teaching and learning of mathematics (Boni, 2018). The teachers also disclosed that using technology-based teaching improved their pedagogical skills even though they practice more of the traditional approach of teaching than the use of ICT. The foregoing discussion presents the notion that mathematics teachers have positive perceptions about the use of electronic devices to support their teaching practices as well as the learning processes of their students.

Teachers' electronic readiness

The electronic readiness of the mathematics teacher determines how successful ICT can be integrated into the teaching and learning of mathematics. Baya'a and Daher (2013) confirmed that, the positive perceptions of Arab teachers could stem from their readiness to use electronic devices to augment their teaching practices. It is also highlighted that the use of ICT to support learning has proven to be an effective pedagogical approach, and therefore, the readiness of the mathematics teacher and students need to be explored to determine their readiness for using these tools to support teaching and learning (Mazana, Montero & Oyelere, 2019). Within the Ghanaian context, Mensah (2017) concluded that, the high usage of scientific calculators in the mathematics classroom is a glimpse of evidence that teachers and students might be ready to support learning with electronic devices.

Research Methods

Research design

Descriptive research design was employed to obtain quantitative data that was analysed to describe the electronic readiness of the Ghanaian senior high school mathematics teachers. The descriptive design was adopted on the premise that the characteristics of the mathematics teachers were examined based on their willingness to use electronic devices in the teaching and learning of mathematics. The dependent variables of this study are the mathematics teachers perceived digital knowledge level, their electronic devices readiness level in teaching mathematics, and the teachers' perceptions about the use of electronic devices in teaching mathematics.

Respondents

The study was conducted in the Cape Coast Metropolis in the Central Region of Ghana. The Cape Coast Metropolis forms part of the 22 Metropolitan,

Municipal and District Assemblies (MMDAs) in Central Region. The study was conducted in the Cape Coast Metropolis, the largest city in Ghana's central region and abounds in the number of senior high schools. Figure 1 shows the geographical map of Cape Coast.

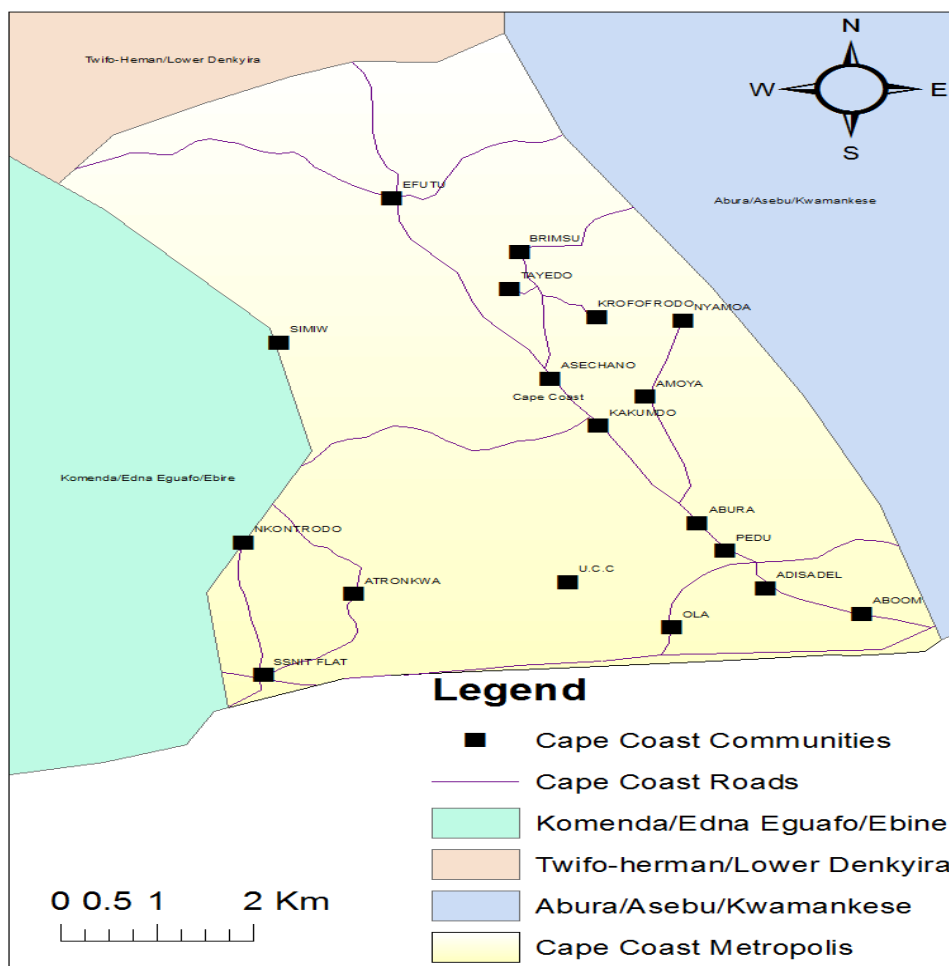


Figure 3: Map of Cape Coast Metropolis

Source: <https://www.researchgate.net/figure/A-Map-of-Cape-Coast-Metropolis>

The targeted population for the study was mathematics teachers from six selected schools (55%) in the Cape Coast Metropolis, out of the total of eleven senior high schools in the metropolis. A simple random technique (using the Excel random number generator) was used to select six schools from the total of eleven for this study. The total number of mathematics teachers in the six

selected schools were 170. Out of the 170 mathematics teachers, 118 (70%) responded to the research questionnaire based on their willingness and availability at the point of data collection. Hence, 118 mathematics teachers formed the sample size of this study. The distribution of sampled teachers across the elected schools is displayed in Figure 2, showing the number, and percentage of mathematics teachers selected from each school. For ethical reasons, the six selected schools are confidentially coded A, B, C, D, E, and F.

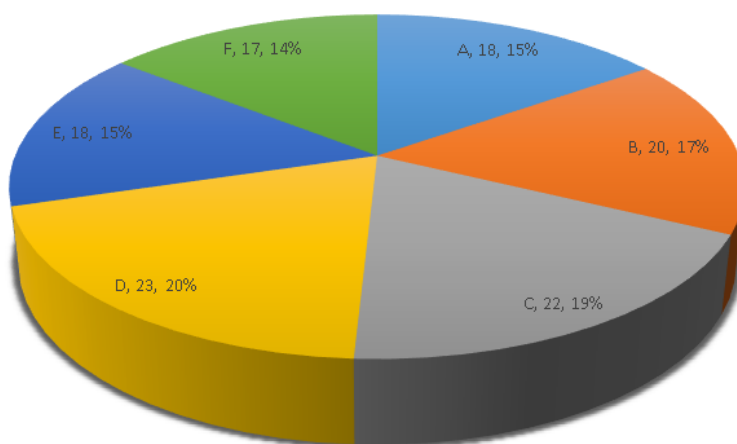


Figure 2: Distribution of sampled teachers from six selected schools

Instrument

The main instrument of measure of the research was questionnaire. The perception of digital knowledge, perception of ability to use, and perception of electronic readiness questionnaire of Alshehri (2012) was adapted for this study. While maintaining the meaning, questionnaire items were reworded to reflect electronic devices used in the Ghanaian SHS context. Two items were deleted from items on the electronic knowledge level of teachers because the items related to advanced application of python. The questionnaire was structured in four major sections: (A) required participants' demographic information, (B) consist of questions based on the perception of their knowledge level of electronic devices in teaching mathematics, (C) provided questions on mathematics teachers' perceptions of using electronic devices for

teaching and (D) contained items on the teachers perceived electronic devices readiness. The Cronbach Alpha reliability coefficient of the questionnaire was determined. The reliability of the teachers' perception of their knowledge level in electronic devices, their perceived electronic devices to teach, and their perceived readiness to use electronic devices were 0.82, 0.87, and 0.85 respectively. The mathematics teachers were to indicate the extent of their agreement to each statement on the perception items on a five-point Likert scale coded as strongly disagree (1), disagree (2), undecided (3), agree (4), and strongly agree (5).

Data analyses

Frequency counts and percentages were used to present results of the respective research questions. The teachers' perception of their knowledge level in electronic devices was analysed and results presented using frequencies and percentages. Also, the perception of the teachers about their use of electronic devices and their readiness to use them in teaching mathematics was also presented using frequencies and percentages. The five-point Likert scale responses of the mathematics teachers was recategorized into three-point Likert scale, where strongly agree and agree was collapsed into agree, and strongly disagree and disagree also collapsed into disagree. Hence, the results are presented for the combined agree as agree, neutral, and the combined disagree as disagree.

Results

The results are presented based on the research questions. The purpose of the study was to determine the electronic readiness of SHS mathematics teachers to integrate ICT into the teaching of mathematics. Results are presented using frequencies and percentages.

Digital knowledge level of senior high school mathematics teachers

This research objective sought to determine mathematics teachers perceived digital knowledge level. Frequency counts and percentages were generated for each item and the results are presented in Table 1.

Table 1: Perception of mathematics teachers' knowledge level of electronic devices usage

Perceived Digital Knowledge level			Agree		Neutral		Disagree	
			f	%	f	%	f	%
Overall	perceived	digital	78	65.8	14	11.7	26	22.5
knowledge level								
I know how to connect projector and use printer			74	77.9	10	10.5	11	11.6
I frequently play around electronic devices			68	71.6	21	22.1	6	6.3
I am able to use electronic devices to explore mathematical ideas			66	69.5	17	17.9	12	12.6
I know how to use different electronic devices			63	66.3	23	24.2	9	9.5
I am able to select certain electronic devices to communicate mathematics processes			62	65.3	26	27.4	7	7.4
I am able to use electronic devices to solve mathematics problems			62	65.3	23	24.2	10	10.5
I know how to use electronic devices to represent mathematical ideas			57	60.0	27	28.4	11	11.6
I know how to fix electronic devices when I encounter challenge(s) when using them			48	50.5	24	25.3	23	24.2

Source: Fieldwork (2022)

Table 1 shows that 65.8% of the mathematics teachers perceived having the requisite digital knowledge for using electronic devices to support the teaching and learning of mathematics as against 22.5 % who perceived not possessing the needed digital knowledge for mathematics instructional. A relatively low percentage of the teachers remained indecisive of their perceived digital knowledge level. The frequency counts of the respective items show that 11.7 % of the teachers averagely judges their digital knowledge level in using electronic devices to teach mathematics. Specifically, 65.8% of teachers agreed to having the knowledge to; use different electronic devices like

projectors, communicate with these devices, use electronic devices to explore mathematic concepts, use them to represent mathematics ideas and solve problems. Also, 22.5% of the mathematics teachers disagreed to possessing the digital knowledge for using electronic devices to support the teaching of mathematics whiles 11.7% revealed an average digital knowledge level. From Table 1, the frequency counts of the items show that SHS mathematics teachers perceived their knowledge level to be high in using electronic devices to teach mathematics. The percentage of teachers who agreed to possessing the repertoire digital knowledge was greater than those who disagree to the items. Therefore, majority of mathematics teachers from the sampled schools perceived to have high digital knowledge for teaching mathematics.

Mathematics teachers' perception on the use of electronic devices in teaching mathematics

This research objective sought to determine the perception of the mathematics teachers on the use of electronic devices for teaching mathematics. Frequency counts and percentages were generated for each item and shown in Table 2.

Table 2: Mathematics teachers' perception on using electronic devices

Teachers' perception on digital devices	Agree		Neutral		Disagree	
	f	%	f	%	f	%
Overall perception of use of electronic device	81	68.8	26	22.4	11	8.8
Engaging with electronic devices is not difficult.	71	74.7	14	14.7	10	10.5
Teaching with electronic devices can help me organise tasks well and in simple forms.	69	72.6	18	18.9	8	8.4
Use of electronic devices as instructional tools can increase the interest of students toward learning mathematics	69	72.6	16	16.8	10	10.5
Teaching with electronic devices makes students understand the concepts well.	67	70.5	27	28.4	1	1.1

Using electronic devices make teachers more productive	66	69.5	22	23.2	7	7.4
Teaching with electronic devices does not delay the instruction process.	63	66.3	20	21.1	12	12.6
Usage of electronic devices makes it easier to prepare course materials (assignments, handout)	62	65.3	21	22.1	12	12.6
Using electronic devices for instructional purposes is important rather than printed materials only	54	56.8	34	35.8	7	7.4

Source: Fieldwork (2022)

Based on the item-by-item analyses, the percentages of Table 2 show that the teachers have positive perception about the use of digital devices in the teaching and learning of mathematics. This is reflected on the 68.8% of teachers expressing confidence in their ability to use various digital tools for supporting the teaching and learning of mathematics. Also, 22.4% of the teachers expressed average perceptions of their abilities in using different electronic devices in supporting students learning. However, a relatively low percentage (8.8%) of the teachers indicated low perceptions in their potentials of supporting mathematics teaching with electronic devices. The general view of the results suggests that 68.8% of the teachers demonstrated positive perceptions of supporting mathematics teaching with electronic devices and thereby agreed that: using electronic devices to support learning is not difficult and makes preparing course materials easier; electronic devices help organise learning activities; students learning interests increases; teachers' instructional practices improve and makes them more productive; and make students understand concepts better. About 8.8% of the teachers disagreed to the affordances of electronic devices in supporting students learning of mathematics and 22.4% of the teachers showed average perceptions about the use of electronic devices in the teaching and learning of mathematics. The results of Table 2 indicate that Ghanaian SHS mathematics teachers have positive perceptions regarding supporting learning processes and activities with electronic devices.

The electronic readiness of mathematics teachers

The third research objective was to determine the readiness of mathematics teachers in using electronic devices to support the teaching and learning of mathematics. The frequency counts and percentages of teachers' electronic readiness is reported in Table 3.

Table 3: Mathematics teachers' electronic readiness

Teachers' electronic readiness	Agree		Neutral		Disagree	
	f	%	f	%	f	%
Overall perceived readiness to use electronic devices	80	67.8	25	21.4	13	10.8
I can download files from the Internet using electronic devices	74	77.9	15	15.8	6	6.3
I am competent in using presentation software such as PowerPoint	68	71.6	18	18.9	9	9.5
I am confident when using electronic devices	68	71.6	15	15.8	12	12.6
I possess basic skills to operate electronic devices.	67	70.5	21	22.1	7	7.4
I am willing to integrate electronic devices in teaching mathematics (computers, mobile phones, projectors, printers etc)	65	68.4	18	18.9	12	12.6
I can use electronic devices to support my teaching methods	64	67.4	25	26.3	6	6.3
I can develop electronic learning activities that urge my students to become critical thinkers	60	63.2	24	25.3	11	11.6
I can design online quizzes and use them in teaching my classes.	49	51.6	27	28.4	19	20.0

Source: Fieldwork (2022)

From Table 3, it is revealed that 67.8% of the mathematics teachers expressed readiness to support their instructions with electronic devices. On the other hand, 10.8% of the teachers suggested they were not ready to use electronic devices during their mathematics lessons. A relatively moderate percentage of

the teachers, 21.4% expressed average readiness to use electronic devices during their mathematics instruction. The total frequency counts show that 67.8% of the mathematics teachers have expressed their readiness to use electronic devices to augment teaching and learning activities of mathematics in Ghanaian senior high schools. The responses revealed that teachers can download instructional materials from internet, they have high presentation competencies when using PowerPoint, they are willing and are confident when using electronic devices, they have the skills to operate and integrate digital tools into lessons, they can use electronic devices to develop and design learning activities, conduct online quizzes, and integrate electronic devices into various teaching approaches. These results suggest that the readiness of mathematics teachers to support teaching and learning processes with electronic devices is relatively high, and hence Ghanaian mathematics teachers are ready to adapt and employ these devices into curricula activities.

Discussion

This study aimed to investigate the electronic readiness of senior high school mathematics teachers. The study is pivoted on the perceived digital knowledge level, teachers' perception about electronic devices usage and the electronic readiness of mathematics teachers.

The results on the perceived digital knowledge level of the senior high school mathematics teachers showed that generally, mathematics teachers believe they have the requisite digital knowledge to integrate electronic devices into the teaching and learning of mathematics. The teachers' responses revealed their perceived capability to use devices such as printers, projectors, computers, mobile devices and mathematical software to support mathematics instruction. Thus, the knowledge of available electronic devices for teaching mathematics is reportedly high among the teachers. This finding aligns with literature that, high knowledge of classroom technological resources translates into effective technology adaptation into teaching practices (Chege, 2014). Hence, the Ghanaian mathematics teacher is perceived to have the requisite knowledge of electronic devices that can be employed as teaching-learning resources for teaching different mathematics concepts.

The results also suggest that the mathematics teachers know how to use different electronic devices to support learning activities. This indicates that they can employ appropriately different electronic tools into the teaching

processes of various mathematics concepts. The ability of teachers to use different or multiple electronic devices to support learning is an expression of the extent of their high digital knowledge.

It was also reported that the teachers had perceived themselves to attain proficiency of choosing specific electronic devices that are suitable for teaching some specific mathematics contents. The ability of teachers to specify which device can be used to communicate what mathematical concept exemplifies their competencies in technology integration. Agyei and Voogt (2010) agree with this conclusion that technology integration competencies is defined by the teachers' ability to know the ways through which a technology should be used to communicate mathematics ideas to the student. Therefore, teachers' ability to select certain electronic devices to communicate mathematical content and represent mathematical ideas suggest that the teachers possess the necessary digital knowledge which helps them to select the appropriate electronic devices to support in communicating and representing mathematical ideas appropriately.

The results on the perception of the mathematics teachers on the usage of electronic devices revealed that the teachers had positive perceptions about supporting mathematics classroom learning activities with electronic devices. It is revealed that about 68.8% of the mathematics teachers expressed positive perceptions to supporting mathematics learning with electronic devices. This result agrees with the research of Boni (2018) which pointed out that teachers demonstrated positive perception about the use of ICT in teaching and learning. Boni (2018) concluded that, teachers who used technology-based teaching improved in their pedagogical skills and practices.

It is reported that the teachers did not perceive to experience difficulties in using the electronic devices for instruction. The teachers also indicated that the use of technology did not delay the progress of lesson delivery. Thus, the positive perception of teachers could be explained by the minimal challenges they experienced when using electronic devices. It could also be attributed to the success of achieving their teaching-learning objectives within stipulated time frames. The positive impact of technology in mathematics learning expressed by the teachers could explain their positive perception regarding using electronic devices in learning mathematics. Baya'a (2010) posited that

the perception one may have about electronic devices extends to the success of using it to support work activities.

Again, the teachers indicated that the usage of electronic devices as instructional tools can increase the interest of students towards the learning of mathematics. The responses suggest that students engage or participate actively when they are being taught through the use of electronic devices. The opinion that electronic devices can serve as mediating tools to enhance mathematics learning could also explain the positive perception of the teachers.

Results on the perceived digital readiness of the mathematics teachers revealed that about 67.8% of them felt digitally ready to use electronic devices to support the teaching and learning of mathematics. The results showed that the teachers were confident using electronic devices, possessed basic skills to operate electronic devices, and were willing to integrate electronic devices in teaching mathematics.

The willingness of the teachers to integrate electronic devices into the teaching of mathematics means that the mathematics teachers are purposeful, passionate and committed to integrate the electronic devices into the teaching of mathematics. The perceived electronic readiness of Ghanaian mathematics teachers in the present study is consistent with the results of Mazana, Montero and Oyelere (2019) that, mathematics teachers and their students of the 21st century are always electronically ready in terms of perception, knowledge, skills and psychology. This implies that the Ghanaian mathematics classroom is ready to undergo a technological transformation from the old face-to-face traditional approach to a technological interactive platform for effective mathematical discourse.

Implications and Recommendations

The intention to use technology to support classroom learning activities could be a result of positive perceptions about the usefulness of the technology. Based on the concepts of Technology Acceptance Model (TAM) by Ma and Liu (2014), teachers' behavioural intentions of using technology can be defined by their attitudes, ease of use and usefulness of the technology system. Results of this study informed that the mathematics teachers reported high

positive perceptions regarding augmenting learning activities with technological tools. Thus, the Ghanaian mathematics teacher has the behavioural intention of supporting mathematics learning with technology. Authorities in tertiary and second cycle institutions could harness this positive behaviour of teachers towards school development through providing digital resources for instructional activities.

The readiness of the mathematics teachers to use digital resources for teaching-learning activities informs the need for curriculum restructure, offering an opportunity to extensively integrate the application of technology into learning considerable concepts of the mathematics curriculum. The teachers reported perceived high digital proficiencies, thus integration of new technology into the mathematics curriculum would be readily accepted and adapted by teachers for teaching and learning. This is a gateway to motivate teachers undergo a paradigm shift of conventional teaching practices to using 21st century digital tools that enhances learning and support problem-solving of real situations.

Based on the high perceived digital knowledge level of the teachers, their digital proficiencies and readiness reported, it is recommended that institutions endeavour to provide the necessary digital resources for the teachers to use to support learning activities. Curriculum development and design institutions such as Transforming Teacher Education and Learning (T-TEL) could considerably integrate technology into classroom textbook learning activities. The Ministry of Education, Ghana, is encouraged to intensify trainings involving teaching with technology during professional development programmes among teachers.

Conclusion

The senior high school mathematics teachers indicated they had the necessary knowledge to use electronic devices in teaching mathematics. They know how to connect projector and use printer, they frequently play around electronic devices, they know how to use different electronic devices, and they are able to use electronic devices to explore mathematical ideas during instructional process.

The teachers do not have difficulties in using electronic devices. They believe that teaching with electronic devices do not delay the instruction process, and the devices help them organise tasks well and in simple forms. It is also noted that using electronic devices as instructional tools enhances understanding and increases the interest of students towards learning mathematics. The Ghanaian mathematics teacher has a positive orientation about supporting lessons with electronic devices. Thus, teachers reported their willingness, confidence and competencies in using electronic devices such as GeoGebra, Autograph, mobile devices, calculators, projectors and printers.

Therefore, senior high school mathematics teachers in the Cape Coast Metropolis perceived digital knowledge levels are high. The teachers reported positive perceptions about using electronic devices to support the teaching of mathematics and are electronically ready to adopt technology-based instructions as a pedagogical approach.

Ethical Statement

A signed consent was obtained from each participant prior to the commencement of data collection, ensuring voluntary participation and ethical adherence.

Conflict of Interest

The authors affirm that there is no conflict of interest with regards to the publication of this article.

Author Contributions

Yarkwah: Conceptualisation, data collection, supervision, final review.
Twum: Data collection, supervision, final review. Erebakyere: Conceptualisation, data analysis / interpretation, drafting manuscript, final revision.

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Generative AI Statement

There was no use of AI in any form in putting this manuscript together. The authors state that this paper is their own original writeup.

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Exploring Challenges of Using English as a Medium of Instruction in the Colleges of Education: A Case of Oti Region of Ghana

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Abstract

The purpose of this study was to investigate the difficulties associated with teaching in Ghanaian colleges of education using English. The study was conducted using a mixed-method methodology. Purposive and basic random sampling were used to gather data using questionnaires, in-class observations, and interview schedules. The results showed that adopting English as a medium of instruction had drawbacks, including encouraging excessive time spent in class, lowering student participation because of poor English ability, and making it difficult for students to comprehend English-language textbooks and lectures.

Additionally, it was found that students who learn by memorization are less engaged with their course topics. It is suggested that language alternation pedagogy, together with other support measures, could raise English proficiency in Ghanaian educational institutions.

Keywords: *English, Lingua Franca, Medium of Instruction, Challenges*

Introduction

The paper aims to examine how English is used as a teaching language at two educational institutions in Ghana's Oti Region. The language that the instructor uses to instruct is referred to as a medium of teaching. As a result, when English is not the pupils' first language, the educational system employs English as the main language of instruction. To put it another way, teaching academic courses in nations where English is not the students' first language is known as English is used as a language of Medium of Instruction (EMI).

In higher education, it is a quickly growing phenomena (Dafouz & Guerrini, 2009; Doiz et al, 2013, as referenced in Macaro et al, 2016). English has been used as a lingua franca (common language) for over 20 years, and the English that is taught to non-native speakers in second language classes is frequently distinct from the English used in lingua franca conversation. Higher education is one well-known setting where English is being used as a lingua franca.

Because many universities have switched to teaching in English in an attempt to draw in more students and staff from outside their borders, internationalization of universities is thus accompanied by campuses that are paradoxically becoming more linguistically and culturally diverse on the one hand and more focused on English on the other (Jenkins, 2018).

Therefore, English as a medium of education is a complicated phenomenon, but outside of English language as foreign-oriented study into English as a medium of instruction, its (multi)lingual franca nature is still poorly recognized and frequently overlooked (Jenkins, 2018). However, regardless of whether the country is Anglophone or not, there are other languages spoken on campus in addition to English, which is used in a variety of ways. With a growing trend in Ghanaian schools and universities to use English as the sole official language of administration and instruction, in addition to being the primary language of instruction, the issue of the language of instruction in

schools and universities has consequently become evidently current and topical. Because of its importance in the phases of integration, internationalisation, and globalization, English is emerging as the official international language in the era of globalization.

Ghana is one of the African countries that uses English as a teaching language starting in Primary four (4). Early grade instruction should be conducted in either English or the local tongue, according to recommendations made by President Kufour's Committee on Review of Education Reforms in 2002. Economics, science, technology, and computer science are all conducted in English. It is sometimes believed that the increasing need for English in research and higher education over the past few decades is a parallel and inevitable development that will increase academic communication across borders.

With the exception of teaching a Ghanaian language as a subject, the remainder of the child's education should be in English (Anamuah Mensah, as stated in Seidu, 2011). This is because, according to Seidu (2012), English is the only lingua franca or shared language in Ghana and serves as a unifying force for the country's society more so than any other Ghanaian language. As a result, English emerged as a preferred teaching language among academics and learners.

Literature Review

In Ghanaian colleges of education, especially those in the Oti Region, English is the main language of instruction. However, many students face significant challenges in learning and understanding course content due to their limited proficiency in English. These challenges can hinder academic performance, engagement, and overall comprehension of lessons. A growing body of research highlights the impact of language barriers on students' learning experiences, particularly in multilingual settings. This literature review examines existing studies on the challenges of using English as a medium of instruction, exploring factors such as students' language proficiency, teaching strategies, and the implications for educational outcomes. By Analysing relevant literature, this review aims to provide insights into how language-related difficulties affect teacher training and propose potential strategies for improving instructional practices in the Colleges of Education in the Oti Region of Ghana.

The Use of English as a medium of instruction

Speakers have more exposure to and opportunity to communicate in English when English is used as a medium of education. This covers informational, narrative, and conversational discourse in addition to spoken and written language. The performance of our pupils determines the success of our educational establishments. Students must do better, as evidenced by their written and oral assignments. Both native English speakers and educated African speakers of English may find it difficult to cope with English as a medium of instruction at educational institutions. Without a doubt, this calls into question how well we teach and learn English.

Few studies have been conducted on the topic at educational institutions, despite the fact that English is used as a medium of instruction at many Ghanaian institutions. Interestingly, a large number of these research suggest that studying in English improves students' academic performance in higher education. This covers informational, narrative, and conversational discourse in addition to spoken and written language. Students at our educational institutions learn more quickly as a result of this. Additionally, studying in English helps kids expand their vocabulary. Accordingly, learning English raises their level of proficiency both inside and outside of the classroom (Sultan et al, 2012).

As a result, their language proficiency improves, and they are better able to interact with their teachers and peers. As a result, students utilize English in both their daily conversations and their academic work. Thus, studying in English improves pupils' academic achievement on all fronts.

Unquestionably, a number of further research had identified that students' employment of English as a medium of education has not produced many positive outcomes. Contrary to the assertions that students learn a great deal of words when they learn English, the English language actually hinders their academic performance rather than helping it (Briggs et al., 2018). According to other research, pupils encounter technical vocabulary in English that they struggle to understand (Othman & Saat, 2009).

As a result of their dreadfully low skill level, kids are unable to participate in class and communicate. This is evident from the fact that reading comprehension passages present difficulties for pupils due to the large number

of unfamiliar words they include. As a result, kids' academic performance falls short of this expectation. Low English proficiency among pupils could be a likely contributing factor (AlBakri, 2017; Mchazime 2001). The substantial impact this has on our educational system in general and on the students in particular is tolerable to both native English speakers and educated African English speakers (Othman & Saat, 2009).

Most students will be unable to respond or ask questions in class if tangible steps are not taken to address this issue, and they will be more likely to drop out of school due to their incapacity to handle the English language in the classroom. The scope of studies in this area is constrained because they either examined the impacts or the importance. Thus, it makes sense to examine the difficulties related with using English as a teaching language in Ghana's Oti Region's educational institutions. This was accomplished by using a mixed-method approach that included eight English tutors and a sample of 200 pupils.

Exploring challenges of using English as a medium of instruction in the classroom

This study looked at the challenges of teaching English in Ghana's Oti Region's educational institutions. It seems that English teachers at educational institutions have been operating in the dark for a while because there is a lack of adequate empirical data about the use of English as a medium of instruction. As a result, the study offers the empirical information needed to create successful classroom English teaching methods. Therefore, if teachers have a stronger understanding of English as a medium of instruction in educational institutions, they will be better equipped to appreciate students' difficulties with learning the language. It will therefore enhance the way second language learners are taught English.

The issue of language of instruction in Ghanaian schools and universities is certainly very current and pertinent, especially considering the growing trend of English being used not only as the primary language of instruction but also as the only official language of administration and instruction in these establishments. This stems from the importance of English in the stages of globalization, internationalisation, and integration. Although using English as a language of instruction may have cultural and political ramifications in countries where English is not the first language, English as a Medium of

Instruction (EMI) has grown in popularity in higher education worldwide as a result of internationalization of education and the desire to compete globally.

In addition to the implementation of school regulations that require EMI, it is clear that language learning would occur with the delivery of content in a second language. Research in the domains of language education and acquisition supports the idea that learning a second language is most effective when it is used to convey information that is interesting and relevant to the learner.

Reaching literacy and learning objectives in the classroom depends on the language used for communication. English has always been given preference in the language policies. This is because it has been Ghana's official language of instruction for a long time. In a nation with roughly "50 non-mutually intelligible languages," it also acts as a unifier language (Anyidoho & Dakubu, 2008, p. 2).

English is the principal language of teaching beginning in primary four in Ghana, one of the few African countries where early childhood education is delivered in the child's mother tongue (LI). The language policy, the historical background of English in Ghana, the use of English as a medium of instruction in Ghanaian schools, and the challenges involved are presented after the article's introduction.

Historical background of the use of the English language in Ghana

The government and the missionary organizations that spearheaded the nation's educational advancement had separate language policies before to the British arrival in the Gold Coast, hence there was no language policy for education. For instance, depending on the region in which they worked, the Basel missionaries spoke Akan and other native tongues, while the Bremen missionaries spoke Ewe.

Both the authorities and the Wesleyan missionary spoke English. A single linguistic strategy started to take shape when British authorities were established. The Phelps-Stokes Committee was established in 1920 by Sir Gordon Guggisberg, the governor at the time, to advocate formal education. The Committee suggested that while English should be taught as a topic as soon as practicable, Lower Primary students should be taught in the vernacular instead.

This suggestion was approved by the Ghanaian government and included into the entire educational system (Gbedemah, 1975; Dzamashie, 1988, as referenced in Quarcoo, 2014). Since then, there have been numerous changes made to the educational language policy, particularly at the foundational level, pertaining to both English and Ghanaian languages. Language policy is defined by Weinstein (1980, p. 55) as a long-term, deliberate, and authorized government endeavour to change a language or a language's role in a society in order to address communication issues. Ghana has made numerous changes to its language of instruction policies.

The use of a Ghanaian language in schools became so ingrained when the British colonial authority took over Ghana's educational system in 1925 that the government was powerless to stop the trend (Owu-Ewie, 2006). Thus, bilingual education was introduced in Ghana through the employment of both the colonial language and a Ghanaian language in the classroom. It has always been challenging to decide between the official language, English, and the native tongues for teaching, particularly in Lower Primary.

Language policy

Many laws have been proposed to change the language of instruction in schools since Guggisberg's 1925 educational policy, which recognized a Ghanaian language as a medium of instruction alongside English starting at the elementary level. For instance, teaching Ghanaian took up the first three years, from 1925 to 1951. Between 1957 and 1966, no Ghanaian language was spoken, and between 1967 and 1969, only Primary 1 spoke a Ghanaian language.

Up until 2002, this persisted (Owu-Ewie, 2006, p. 77). According to Quarcoo (2014), English is the only language used in Ghanaian formal education after the first three years of primary school. This is due to the presumption that all children will learn an indigenous language prior to attending school. Because it would then help them comprehend mental ideas, the child would benefit from utilizing it as the language of teaching in Lower Primary. Till lately, this was the norm in the majority of public schools.

A law that mandated the study of a local language as a subject at the secondary level and made English the only language of teaching starting in Primary 1 was approved in May 2002. Ameyaw-Ekumfi, the education minister at the

time, cited a number of reasons for this pronouncement, one of which was that students still lacked the ability to write and speak "good" English sentences by the time they graduated from Senior Secondary School (SSS) (The Statesman, 2002, as stated in Quarcoo, 2014).

Additionally, he maintained that the Ghanaian languages (GLs) do not have a common written form. The minister emphasized that English is the state's lingua franca and that every attempt should be made to guarantee that pupils gain the necessary proficiency in both spoken and written forms of the language. This policy undoubtedly demonstrates that learning and using English in Ghana cannot be compromised. However, while GLs are taught as subjects in schools, they are not completely disregarded under this policy (Quarcoo, 2014).

Regardless of the government's position on the use of a GL beginning in Primary 3, private schools have traditionally used English solely, therefore this policy is not new, especially to them. While some public schools have adopted the new policy of using English starting in Primary 1, others, even within the same neighbourhood, still adhere to the antiquated practice of using indigenous languages from Primary 1 through Primary 3 (Quarcoo, 2014).

Even while GLs have been an essential component of the educational system since Guggisberg's time, it is evident that language policies have consistently favoured English. This is because it has been Ghana's official language of instruction for a long time. In a nation with roughly "50 non-mutually intelligible languages," it also acts as a unifying language (Anyidoho & Dakubu, 2008, p. 2).

From 1971 to 2002, Ghana's language policy typically stated that the primary Ghanaian languages covered in basic school curricula should be taught for the first three years of school and, if feasible, for the following three years as well. The relevant Ghanaian language or languages will be taught as subjects in any Upper Primary or higher schools where English is the primary language of instruction (Ministry of Education, 2002). The policy's primary flaw was that not much had been done to guarantee its complete implementation.

Most Ghanaian children did not learn either English or their mother tongue under the prior P1–P3 system; instead, they switched to English for P4 and the rest of their schooling. Students in all basic schools, including public and

private, would receive instruction in English at all levels under the new policy. From the first year of primary school through junior secondary school (JSS), they will only be required to enrol in a Ghanaian language course. It was also stated that in locations with teachers, French would be taught to students in grades JSS1 through JSS3.

The administration cited the multilingual nature of urban classrooms and the fact that the majority of students may not speak the local language employed as the medium of teaching as justifications for its decision. Before being able to follow the classes, these students and youngsters who have moved from one location to another would need to begin learning new local languages (Ministry of Education, 2002).

The administration also hinted that Ghana is a part of the global village and that English has become a universal language. As recommended, introducing the language to elementary school students early on will facilitate their language acquisition and enable them to participate in international trade, industry, and technology (Government of Ghana, 2002).

The policy also makes the case that kids can readily pick up the ability to communicate in any language they come into contact with. They will therefore be better able to reach the required level of proficiency the earlier they are exposed to English. It's interesting to note that the official stance is that the ongoing use of English as a medium of teaching from preschool onwards is the reason why private schools in Ghana obtain comparatively strong results. The official policy was also defended by other arguments, such as the dearth of local language instructors and resources and the English-language development of textbooks.

It is thought to be better to utilize English as the only language of instruction until these problems are fixed (Government of Ghana, 2002). However, many believe that switching to English exclusively instead of the child's mother tongue or language does not advance the child's linguistic rights or the Objectives for Sustainable Development.

The use of English as a medium of instruction in Ghanaian schools

It is true that English usage has grown extremely complex in Ghana. This form of bilingualism, which is practiced in Ghana and other countries with similar histories, is known as diglossia. According to Morris (1998), diglossia is the

state in which a second language acquired in formal schooling is only utilized for formal spoken and written communication and is not utilized for everyday discourse by any segment of the population. According to Opoku-Amankwa (2009), one crucial element in literacy development is students' access to the language of instruction.

Reaching literacy and learning objectives in the classroom depends on the language used for communication. Learning is mediated by language, which enables us to access new knowledge and relate it to our prior knowledge. Additionally, language is the primary means by which we can exhibit our acquired knowledge. Thus, a key factor in the teaching-learning process is the language used as the medium of instruction. He contends that learning English makes kids anxious and prevents them from participating fully in class.

This claim was stated by Opoku-Amankwa when he examined the main factors influencing the growth of literacy in multilingual classrooms in post-colonial Africa, such as ignorant perceptions about mother tongue/bilingual education. He then looked at the potential for bilingual/mother-language education in multilingual classrooms in Ghana and used empirical facts from Africa and other places to dispel the unfavourable views about mother tongue education. The study was predicated on the rule that the relevant Ghanaian language or languages shall be appropriately taught as a school subject in any Upper Primary or higher schools where English is the medium of instruction (Ministry of Education, 2002).

Purposively selected students from a Ghanaian school participated in focus groups, interviews, and classroom observations of interactions between teachers and students as part of this anthropological case study.

Tamanja (2010) contends, however, that there was little knowledge of the policy on the medium of teaching and that teachers in rural schools choose their native tongues, whereas those in urban ones prefer English. Accordingly, he thinks that in order to raise awareness and alter attitudes toward the use of English as a medium of education, it was necessary to involve all parties involved, particularly teachers. Additionally, there was a need for instructional materials, efficient supervision, and teacher training and motivation. During an investigation into the "attitudes of teachers on the medium of instruction

policy in basic schools in Savelugu Nanton District and Tamale Metropolis," Tamanja asserted it.

In essence, the research focused on a survey that included qualitative and quantitative data. A countrywide teacher capacity survey revealed that instructors in the two districts had deferring attitudes toward the medium of instruction policy, which led to their purposeful selection. A questionnaire was created and utilized to gather information from educators. Interviews were also conducted with circuit supervisors and district directors. Tamanja (2010) may have suggested methods for more research based on his findings that could improve a consistent medium of instruction policy to close the gap between urban and rural schools.

Anh (2010) asserts that local language ought to be adjusted to suit the specific educational environment. He additionally encourages the wise use of the language by adjusting the amount of local language to the pupils' level of English ability and the topics being taught. Therefore, the less frequently the original tongue should be used, the more fluent the student is in English.

Additionally, a lot of issues, including the students' level of English ability, the lesson's objectives, and the length of the session, should influence how frequently teachers speak the local language. According to Anh, using the local language in the classroom can be beneficial and is a component of the teaching methodology. This suggests that, depending on the class level and the subject matter to be taught, local languages could be used in addition to English to enhance teaching and learning. This is comparable to Seidu (2011), who uses his research on Ghanaian language policy to support his argument that language variation in the classroom is beneficial. Data collection and analysis for the study used both quantitative and qualitative methodologies.

The study's non-interventional nature led to the choice of this approach, which also allowed for the choice of study parameters. A basic recorder and classroom observation were the main methods used to collect data. Informal questionnaires and pen-and-paper interviews were used to support it.

As a result, Seidu (2012) claims that educators have favourable opinions about both Ghanaian and English. As a result, educators ought to advocate for bilingual education as a viable teaching strategy in elementary schools. He contends that policy planners needed to reevaluate the official language use

guidelines and recognize classroom language alternation as a viable teaching approach in Ghanaian schools if they wanted classroom instruction to be more successful and significant for primary school students.

In research on "teacher attitude toward language medium policy," Seidu made this claim. It collected data using both qualitative and quantitative methods. To help teachers employ language alternation pedagogy more successfully and efficiently, it was suggested that they be introduced to it. Additionally, he suggested that policymakers recognize classroom language alternation as an effective teaching strategy in Ghanaian elementary schools.

However, Arhin (2014) affirms that teachers employ their own techniques as a teaching aid. Arhin claims that the language of instruction has been examined by linguists, parents, and social critics. While some contend that local languages are broadened and utilized alongside English throughout the elementary school years, others think it will have a detrimental effect on the pupils' English skills. This implies that some teachers do not strictly follow the language rules.

Rather, they instruct in the classroom using their own methods. Purposive sampling was used in Arhin's qualitative case study design. Inductive analysis and creative synthesis were used to present the data, which included observation and semi-structured focus group interviews. As a result, the following suggestions were offered. To effectively serve kids in remote areas, textbooks should be updated, teachers should be supported, and schools should undergo regular inspections. The language policy of education should also be evaluated with regard to schools in rural areas. Teachers at educational institutions may be quite supportive of an institutional policy requiring a certain degree of competency in English. Clear policies about teacher competency and extensive stakeholder discussion are necessary for this, though.

Although Ghana has a language policy requiring English to be the medium of teaching from Primary Four (P4) through Junior High School and beyond, Owu-Ewie and Eshun (2015) argue that this is not always the case in practice. In other words, in these classes, teachers speak both English and the native tongue. The students' inability to use English effectively in the classroom has been identified as the primary cause of the current state of affairs. They also

think that the lack of enforcement of the language policy, the monolingual nature of the classrooms, and the tutors' propensity to teach in local languages are the main causes of the policy violations.

They also confirm that safe conversation, code-switching/mixing, translation, and simultaneous usage of the two languages are the primary tactics employed by teachers. They suggested that in order to improve the employment of English at the Primary 4 to 6 and basic 7 to 9, the language policy should be strictly enforced, English instruction should be improved, the use of local languages as a medium of instruction should be expanded, and classroom environments should be created that support the use of English.

According to Shvidko (2017), students would improve if they practiced their English, and they also saw their native tongues as an important tool for communicating with one another. He further claims that while the majority of unfavourable sentiments are shown in schools where the policy is applied by individual instructors, rather haphazardly and inconsistently, many pupils have favourable opinions of schools that have a formal English-only policy. He continues by saying that while many students seem to have generally favourable thoughts about the English-only policy, it quickly becomes apparent that these opinions are more consistent with the benefits of experiencing a lot of English than with speaking it exclusively.

Students like an institutional policy that promotes the use of English.

The premise that intensive English programs are designed to place students in an environment where English is spoken in order to help them enhance their language skills served as the basis for Shvidko's (2017) research. He collected data using a survey. Both open-ended and closed-ended questions (multiple-choice, 6-point Likert scale) were included in the survey's 15 items. Students were asked to identify and briefly explain how they feel the language use issue should be addressed in the classroom, as well as their overall thoughts about the current English-only policy in the English language classroom.

At the end of the survey, participants were asked if they would be willing to take part in an interview to talk about language use. The study was a component of a larger study that sought to determine the variables influencing students' language use outside of the classroom—that is, in all areas of the

building other than the gym during lunch. However, it also revealed the pupils' opinions regarding the English-only rule.

Despite using the same technique, the organization and follow-up questions of each interview were different. The interviews were audio recorded and done in English. Students from the same local language backgrounds—Spanish, Korean, Portuguese, and Mandarin—who participated in the individual interviews made up the focus groups. The interviews were used to create the focus group procedure. Some of the responses were grouped into more general theme categories.

Lastly, the respondents' further remarks and their answers to the closed-ended questions were categorized as either positive or negative sentiments. For the purposes of the report, only comments that dealt with students' opinions regarding the English-only policy were looked at. The results of the survey were thus verified, clarified, and expanded upon using the qualitative information gathered from the focus groups and interviews.

After that, Shvidko (2017) said that classroom settings should give students plenty of chances to practice their English through a range of language-related activities. The majority of pupils form the habit of speaking English in class since it is seen as a learning environment. Teachers should therefore make an effort to establish an atmosphere outside of the classroom that students would also consider a learning space—an extension of the classroom, albeit one that is less organized and formal. Conversation tables, speech competitions, and interest groups are just a few of the activities that can be used to do this, both academically and socially. Such activities would foster social contact and enable students form friendships with individuals from various nations, in addition to providing them with the chance to practice English in relevant circumstances. However, rather than just providing children with an opportunity to socialize, school administrators should strive to promote language development while implementing these activities.

In a related development, Owusu (2017) observed that students who are emerging bilinguals do not benefit from English-only instruction. This assertion is similar to that made by Owu-Ewie and Eshun (2015) on language policy. This is because it hinders children's ability to participate in class. English is a language with a vast vocabulary, some of which are technical in

nature, according to Owusu. Sometimes the only way to comprehend what they mean is to use the L1.

This assertion was stated by Owusu (2017) in his investigation of a comparative case study of two Ghanaian educational situations. The study investigated how non-native English speakers react to education in English alone, as well as how the policy differs for students in deprived and developed areas. The research was founded on Dutta's claim that a critical investigator was more likely to focus on oppression and inequality, elucidating the links between systemic injustices and personal suffering (Dutta, 2014). Participants were teachers and children from two Ghanaian elementary schools. Purposive sampling was used to choose six teachers from each school. All parties involved in Ghanaian education are required under the guidelines to update language policy and instructional strategies.

Secondary teachers are more certain that employing English as a Medium of Instruction (EMI) provides students with an excellent education, according to Briggs et al. (2018). They argue that neither phase demonstrates enough support to reach the necessary proficiency level, despite the fact that more secondary teachers than postsecondary instructors have an institutional policy about the level of English competency required for instruction in English. Teachers think EMI will affect academic content even though they think it will help students' English.

According to the study's findings, EMI was implemented without extensive institutional stakeholder consultation and, as a result, without explicit guidelines on teacher expertise levels. This was revealed when 167 instructors from 27 different nations participated in a study by Briggs et al. (2018) on secondary and tertiary teachers' perceptions of EMI. Teachers' perspectives were gathered in four key areas: EMI policy, EMI teachers' objectives, student advantages and disadvantages, and teacher issues. The study employed a teacher perspective, which highlights how educators' beliefs are shaped by the social context in which they operate and may or may not correspond with their actual behaviours.

The research used a cross-section, mixed-methods survey with a one data collection instrument. Colleges of education may also benefit from the study's findings about pedagogical resources and abilities. Thus, the employment of

English as a teaching language in colleges is likely to be seen favourably by both instructors and students.

According to the evaluation on the use of English as a medium of instruction, local languages may also be utilized in conjunction with English. The literature evaluation, however, suggests that students ought to be encouraged to utilize the target language. It also notes that some professors have generally disregarded the English-only mandate. Teachers' readiness to use Ghanaian in the classroom is one of the obvious causes of this. But according to the current study, the infringement is caused by specific notions that may require explication in the local languages.

Their results and conclusions show that it is beneficial to use English along with the local languages as a medium of education, despite the fact that the different techniques and theoretical frameworks that guided their research varied. Therefore, the many studies show that a lot of sensitisations as well as teacher training and retraining must be done to improve the usage of both L1 and L2 alternatives as needed.

Challenges of using English as a medium of instruction

It is very important to remember that using English as a teaching language presents several difficulties for both educators and learners. The section examines relevant research on these issues. Numerous studies claim that because English is such a complicated language, students become dissatisfied when studying it. Others contend that low English proficiency and a lack of vocabulary present difficulties for students studying the language. However, some believe that teachers' improper techniques of delivering material to improve students' comprehension are the reason why pupils struggle.

Interestingly, a number of other research also believe that the difficulties arise from the latter's failure to adhere to the language policy. According to Gröblinger (2017), while there are many obstacles to overcome, there are also many potential strategies and answers. Since one of the most important prerequisites for utilizing English as a Medium of education (EMI) is successful education, it is critical to consider how to support lecturers on an individual and organizational level. After their language skills are assessed, both internal and external lecturers must have access to (additional) language instruction, methodological classes, workshops, supervised feedback,

proofreading, and adequate supplies and equipment. The support of mentors and supervisors is also considered to be highly helpful; they can help with everything from class design and methodology to foreign language resources and language challenges.

As a result, this part reviewed the literature from a number of research related to the following topics: student frustration, low English proficiency and a lack of suitable teaching resources, and ineffective employment of English as a language of instruction. Finally, an overview of the literature review on the difficulties is looked at.

Frustration of learners

In this sense, Kyeyune (2003) affirms that teaching mother tongue has practical difficulties. English could be a more straightforward option if a bilingual, communication-focused approach to teaching is properly implemented. He argued that in order to help students comprehend and analyse classroom discourse, teachers should be trained in the skills necessary to foster learning through an analytical knowledge of language-related barriers. They should also be skilled in the two fundamental skills of explanation and questioning.

Additionally, Kyeyune argues that while using one's mother tongue as a substitute medium might be one way to bring about change, there are theoretical reasons to think that this would not necessarily lead to a noticeable improvement because the problem lies deeper than just linguistic proficiency and has more to do with the common ways that teachers and students communicate. Kyeyune (2003) looked at a few ways that teachers' use of English as a teaching language can sometimes work against students' learning efforts rather than in their favour.

However, Namuchwa (2007) disputes Kyeyune's (2003) assertion that English is the most effective language to be taught in schools. He contends that, contrary to what other scholars in the same field of research have said, students learn better when instructed in their native tongues (local languages) rather than English, which is a foreign language. This assertion was made by Namuchwa when he looked into a qualitative study of the challenges of utilizing English as a medium of teaching in Upper Primary schools in rural Uganda. In-depth interviews were conducted with a select group of pupils,

teachers, and the head teacher. Classroom observations were also conducted to support English, math, basic science, health education, and social studies teachers. In addition, relevant policy documents were reviewed.

In light of this, Ozer (2019), who concurs with Namuchwa (2007), claims that pupils face several difficulties when studying in English. These problems, according to Ozer, include students' negative attitudes, perceptions of a drop in academic achievement, the need for additional time to understand, challenges learning, and a lack of confidence. However, he pointed out that opinions among students about how English-language instruction affects their academic performance are mixed. Most pupils say studying in English has a negative impact on their academic achievement. He goes on to say that instruction in a foreign language may have a detrimental effect on pupils' academic achievement. However, Dafouz & Camacho-Minano (2016) looked into the impact of EMI on students' academic achievement and concluded that EMI does not lower students' academic outcomes because students' poor English proficiency seemed to be a barrier to in-class interaction and EMI was ineffective in terms of content knowledge acquisition.

The purpose of his study was to determine undergraduate students' perceptions of the English as a Medium of Instruction (EMI) setting and the EMI classes. Students' thoughts and experiences in an EMI environment were explained through a case study technique, and their perspectives on learning the field-specific curriculum in English were gathered through semi-structured interviews. The data was gathered from fourth-year undergraduate students during the spring semester of the 2017–2018 school year. The research included six male and six female participants.

The research design used in the study was a descriptive survey. Quota sampling was used to choose the pupils. Focus group interviews were used in this study to gather detailed, descriptive information about students' opinions of EMI. Content analysis was used to examine the information obtained from focus group sessions. As a result, Omer suggested that instructors be willing to improve their teaching methods.

Low proficiency in English and lack of appropriate teaching skills/materials

Accordingly, Othman & Saat (2009) state that the first five difficulties instructors encounter when delivering lessons in English are: students' low

English proficiency; a lack of suitable teaching resources for the classroom; a lack of competence in English; and difficulty explaining concepts in English. However, they suggest that these difficulties could be resolved by implementing useful teaching techniques like talking gradually and using straightforward language to aid in understanding, using reference materials, translating during class discussions, and code-switching between the local language and English.

Other strategies include using cooperative group activities, hands-on activities, visual aids, practical demonstrations, and multi-media software provided by the Educational Ministry; consulting useful websites for assistance; writing a script to assist in teaching English lessons; and introducing new vocabulary prior to teaching a topic. Finding out how science pre-service teachers deal with the challenges of teaching in English during their practicum was the aim of the study. Regarding the need for sufficient English-medium teacher preparation, recommendations were made in this regard.

They continued by stating that teacher trainers need to determine ways to help student- teachers acquire the language proficiency and subject-specific teaching methods necessary to carry out science instruction in English effectively.

Non-effective implementation of English as a medium of instruction

According to research, improvements are frequently undertaken too quickly without adequate planning or thoughtful analysis. To overcome the aforementioned obstacles, specific requirements including financial support, workload reduction, and language aid must be met. In light of this, Ibrahim et al. (2017) confirm that there is noncompliance with the English as a Medium of Instruction (EMI) policy.

They claim that there are certain challenges for both teachers and students when using English as a medium of education, especially due to mother language effects. However, Ibrahim et al. believe that some of these issues could be overcome if adequate attention is paid to the training and retraining of educators, legislators, and heads/proprietors of elementary schools. Instruction should be conducted in English and other native or regional languages. Once more, students should be exposed to adequate and pertinent

teaching materials for EMI, and teachers should receive training on how to handle EMI and be proficient in the language.

The researchers came at this conclusion after looking into a descriptive study of the challenges of using English as a teaching language in both public and private primary schools in Nigeria. Determining EMI usage patterns, as well as the challenges and repercussions related to its use, was the aim of this study.

In a similar vein, Al Zumor (2019) claims that teaching in English has a major detrimental effect on the majority of students' assessment and comprehension of the material. Therefore, he suggests looking at the possibility of additive bilingual education and making sure that the foundation year students receive high-quality English instruction. This claim was made when he investigated how students in an EMI context perceived affect, pedagogy, communication, evaluation, and lecture comprehension. His conceptual framework has offered convincing proof that learning one's mother tongue improves academic achievement. It has shown how closely mother tongue instruction and high academic achievement are related. Though, the globalization of English had created a novel environment for advanced education where mother languages are no longer as important in many non-Anglophone nations, which has led to a thriving field of study.

Methods

Research design

This study used a mixed-method approach to investigate the research questions. In a single study, "involves the collection or analysis of both quantitative and/or qualitative data in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research," Creswell, Plano Clark, Gutmann, and Hanson (2003) state (pp. 209-240). They point out that collecting data simultaneously enables the researcher to look for and contrast the two types of data in order to uncover findings that are consistent (Creswell et al., 2003). Therefore, the study employed both quantitative and qualitative methods. This set of techniques was selected because it promotes the study's objective, which is the use of English as a medium of instruction in educational institutions, and it uses a representative sample of Dambai and Jasikan Colleges of Education in Ghana.

This is due to the method's ability to employ a variety of tools, including focus groups, questionnaires, and observation, to collect information from participants in their natural environments in order to meet the study's goals. Additionally, the limitations of any one method are supplemented by the mixed-method approach. This strengthens the findings. Assuring the validity, originality, and quality of responses pertaining to the phenomenon being studied is the main goal of employing equally qualitative and quantitative responses in research. Additionally, one component of the responses will be used as supporting data (Creswell & Plano, 2011).

The sample and the sampling process

Purposive sample and basic random sample were the two sampling strategies used in this investigation. While simple random sample was utilized to choose student respondents, purposeful sampling was utilized for tutors.

Purposive sampling for tutors

Another name for this is subjective or selective sampling. This method depends on the researcher's discretion when choosing subjects. Therefore, researchers may unintentionally select a "representative" sample to accomplish their objectives or target people with particular traits. Because English language tutors are aware of how their pupils utilize English as a medium of instruction, this sample approach was used to tutors.

They are the ones with well-informed opinions regarding the pupils' proficiency in the English language. Purposive sampling also has the benefit of being economical and time-efficient to conduct.

Simple random sampling for students

In this case, every single student was picked at random, and every student in the entire student body have an identical probability, of being chosen. The responses were divided into males and females to provide gender parity. Under the sponsorship of the Ghanaian government, Transforming Teacher Education and Learning (T-TEL) promoted measures to address gender sensitivity issues in education colleges, which served as the foundation for the decision to choose students in an equal male/female ratio. Paper pieces were cut out of each category in both colleges based on the number of pupils. Of the fifty (50) pieces of paper for each gender, fifty were marked "Yes," and

the remaining halves were marked "No." The sample for the study included everyone who selected "Yes." Because it reduces selection bias and allows for the calculation of the sampling error, simple random sampling was selected. Its simplicity as a probability sampling technique is one of its main advantages.

Sixteen (16) English language tutors from each college and third-year students from Jasikan College of Education and Dambai College of Education, respectively, made up the study's population. Due to their close proximity and ease of access, the two colleges have been selected as the research sites. The fact that they are the only two educational colleges in the recently established Oti Region is another factor. At the start of the 2021–2022 school year, the Dambai College of Education had 1,266 students enrolled and eight (8) English language tutors. With 1,531 students, Jasikan College of Education also employed eight (8) English tutors. One hundred second-year students from each of the colleges comprised the sample of 200 students. As previously stated, 50 men and 50 women were chosen from each college to guarantee gender parity. The selection of second-year education college students was based on their minimum two-year enrolment in the college system. They were also familiar with the College system. Twenty groups of 10 students made comprised the focus group interview target pool in addition to one-on-one interviews with English tutors. Student focus groups involved ten groups from each college.

Table1: Selected sample for the research (teachers)

Category	
	Frequency
Tutors in Dambai	8
Tutors in Jasikan	8
Total	16

Table 2: Selected Sample for the research student-teachers

Category	Frequency
Third year student-teachers (Dambai)	100
Third year student-teachers (Jasikan)	100
Total	200

Table 3. Distribution of Sample (gender) (student-teachers)

Category	Frequency
Male (Dambai)	50
Female (Dambai)	50
Male (Jasikan)	50
Female (Jasikan)	50
Total	200

Data collection methods

The study employed both qualitative and quantitative data collection techniques. A range of technologies were employed to ensure the researcher got all the information from the respondents. Creswell (2011) asserts that employing two methods for data collection helps to better comprehend and interpret the research findings by delving deeper into important problems present in the variables being studied. In order to gather information for the study, questionnaires, in-class observations, and interviews were employed. The survey was modified from Agyemang-Prempeh (2018) and Rogier (2012). This is because they looked into related topics in various contexts.

As previously mentioned, data were collected in three stages to investigate English as a medium of teaching in Colleges of Education. A structured questionnaire was used in the first phase to collect the opinions of the student participants regarding the importance of teaching in English, the difficulties of doing so, and the results of doing so in educational institutions. Additionally, the students were asked to score how well they could do the assigned tasks and speak English. The study selected 100 students from each college to complete the questionnaire using a random sampling technique, for a total of 200 responses. There were 100 female students and 100 male students out of the 200 total. Structured questionnaires, interviews, and in-class observations were among the tools used to collect data from the study's participants.

Questionnaire

Since the researcher could not be available at all times, a questionnaire was utilized to collect a sufficient amount of quantitative data. Because universities follow an academic calendar, the researcher had to finish the study within a specific time frame. Furthermore, structured questionnaires were used in this study since, according to scholars, they are quicker to code and analyse than

word-based data (Cohen, Manon, & Morrison, 2007). Sarantakos (1998) asserts that a questionnaire is advantageous because it ensures respondents' high anonymity and standardizes data collection, both of which incentivize respondents to give truthful information.

The use of a structured questionnaire might also be advantageous for a large sample size if participants are comfortable answering questions. The five (5) sections of the questionnaire included a collection of items that were directly related to the study issues.

In order to get their thoughts on each of the five categories, the respondents were requested to answer a variety of questions. The purpose of the first portion was to learn what the students thought about the reasons they were studying English. The second question asked for opinions on the difficulties that students at education colleges encounter because English is the language of instruction. Responses regarding the impact of using English as the primary language of instruction in educational institutions were gathered in the third segment. The respondents were asked to score their proficiency in English and completing specified tasks in the final two (2) sections of the questionnaire. 195 of the 200 copies of the questionnaire that were distributed to students were returned. Additionally, 16 tutor surveys were gathered, and the researcher used these files.

Focus group interview

The second step was the structured interview. In order to assess participants' opinions, feelings, and experiences about a subject under study, a focus group interview enables the researcher, acting as a moderator or facilitator, to bring a large number of participants together at one convenient time and place (Bell, 2008; Marvasti, 2004).

The study's research questions served as the basis for the questions in the semi-structured interview guide. While the 16 English language teachers were interviewed one-on-one, the students were interviewed in focus groups. As previously stated, the sample of participants for the focus group interviews included 16 individual interviews with English language teachers from both universities and 20 groups of 10 students based on themes that were found. The interviews were recorded using a recorder, and the tapes were

subsequently transcribed. This was done to ensure the validity of the participants' remarks and opinions.

Observation

The final phase was observation. As a deliberate, organized, and systematic process of "looking" or "watching," observation is a crucial component of all scientific investigations. It is a process guided by logical norms and assumptions and motivated by the desire to learn more about events, occurrences, processes, reactions, conduct patterns, and connections. As part of a systematic data gathering approach, researchers use all of their senses to monitor people in their natural settings (Smart, Peggs & Burrige, 2013). One of the primary advantages of the observation approach is its directness. By hearing what individuals say and observing their actions, you can gain insight into their attitudes, feelings, and ideas (Cargan, L. 2007). The researcher switched between seeing a two-hour class at Jasikan College and Dambai College based on the following criteria:

Tabel 4: In class lesson observation guide

Criteria	Rating		
Teacher-used lesson language	Only English	Only L1	English with L1 for little clarity

Collection of data

Within a month, the participants self-administered the questionnaire, the observation and the interview. This tactic gave the chance to address concerns that the respondents had regarding the tool. Additionally, the majority of participants were motivated to reply to the items by the personal administration of the instrument. As previously stated, 195 of the 200 student self-administered surveys were received. Alongside the qualitative data, questionnaires from 16 English tutors, including the aforementioned 195, were examined.

Data analysis

The data collected from the questionnaire, in-class observations, and interview schedules were subjected to both qualitative and quantitative analysis. Analysis was carried out theme-by-theme.

To find parallels and contrasts, the researcher arranged information from all interviewers or respondents and their responses, including observations made in class. The connections and linkages between the responses were investigated during the findings analysis.

Ethical considerations

Ethical considerations are not just procedural; rather, they are embedded throughout the entire research process and are crucial in framing the research design because "one has to consider how the research purposes, contents, methods, reporting, and outcomes abide by ethical principles and practices," according to Cohen et al. (2007) (p. 51). Therefore, when evaluating the research challenge, the cost/benefit ratio was taken into account. There was almost no risk to the participants. They were asked to schedule time to participate in the interview and finish the survey.

After balancing the expected benefits of the research (increased knowledge about the benefits/significance, the challenges, and effects of English as the medium of instruction) against the costs (participants' time), it was concluded that the study was valuable as a first step in the research process. Other ethical study considerations included decreasing participant risks, informed permission, privacy, anonymity, and confidentiality.

Since each participant was an adult, they were competent enough to make their own well-informed judgments about taking part in the experiment. At every stage of the data collecting procedure (completing the questionnaire and taking part in interviews), they were made conscious of the situation and goal of the study, and participation was entirely voluntary. The fact that participation was entirely voluntary and that withdrawal was possible at any moment was explained to the participants. At every stage of the research, they were given the researcher's name and contact details. I obtained the participating tutors' permission before doing the in-class observation. Measures were taken to protect each participant's privacy and confidentiality during the entire study.

Validity

Triangulation was used to guarantee the validity of this investigation (Cohen et al, 1994). When studying a facet of human behaviour, triangulation entails using two or more data gathering techniques (Cohen et al., 2007, p. 11). By using two or more approaches, researchers may assess the accuracy of the data

they collect and counteract the drawbacks of using only one approach (Cresswell, 2003; Punch, 2005). As previously mentioned, the semi-structured interview schedule was developed using the questionnaire and observation as a reference. Validity was increased by collecting data using these various tools.

Results and Discussion

There are various perspectives on the employment of English as a medium of instruction. This chapter discusses the study's findings and provides a thematic explanation of the research findings to provide readers a more comprehensive understanding of the study. According to the results, students face several difficulties when it comes to using English as a teaching language in the classroom. Additional research indicates that these difficulties have a noticeable impact on kids' academic achievement.

According to the findings, pupils who receive instruction in English contribute less to the class since they are less proficient in the language and spend too much time during lectures. Using English as a medium of teaching has also been shown to have no effect on students' comprehension of English-taught courses or their ability to decipher English-written textbooks. Additionally, data demonstrates that English-speaking students are more likely to recall facts and engage with their course contents less.

The results of how using English as a teaching medium affects students' performance are the main topic of the third and final segment. The usage of English in educational institutions improves students' employment prospects and increases their global acceptance, according to the findings, which show that pupils grow to have a good attitude toward the language. Additionally, research indicates that using English as a teaching language causes school dropouts since not all kids can understand the material. That being said, it was found that students' competence levels are raised when they use English.

Lastly, the findings imply that students struggle to ask or answer questions when English is utilized as a medium of education due to insufficient vocabulary development.

Difficulties of English as a medium of instruction

This section discusses the challenges of using English as a teaching language. The results of both tutors and students are again compared and analysed, taking into account important findings. Tables 1-4 provide a summary of the responses from both students and tutors.

Table 5: Tutors' responses to the challenges of using English language as a medium of instruction

Item	Disagree	Uncertain	Agree
Diminishes conceptual understanding	50	12.5	37.5
Lack of familiarity with the topic being investigated	75	25	0
Excessive use of time during class	75	12.5	12.5
Low English language competency results in the least amount of participation in the classes.			
Excessive use of time during class	50	12.5	37.5
Low English language competency results in the least amount of participation in the classes.			
Not being able to comprehend English-language textbooks and lectures	37.5	37.5	25.5
When studying in a language they don't understand, students typically pay less attention to what they're learning and learn by memorisation	50	0	50

Tutors in Table 1 mainly concurred that there are difficulties in using English as a teaching language. Fifty percent of them disagreed that it impairs conceptual understanding. However, 12% were unsure, while 37.5% agreed. 75% of respondents agreed that pupils know very little about the subjects they have studied, but 25% were unsure.

75% of respondents disagreed that excessive time is spent during lessons when asked if using English as a medium of education causes excessive time consumption. Nonetheless, 25.5% of respondents accepted the claim. 75% of respondents disagreed with the statement that pupils know very little about the things they have studied, whereas 12.5% agreed and 12.5% were unsure. Similarly, 50% disagreed, 37.5% agreed, and 12.5% were unsure about the belief that pupils' poor level of English language ability is the reason for their lowest level of participation in class. 75% of respondents disagreed that excessive time is spent during lessons when asked if using English as a medium of education causes excessive time consumption. Nonetheless, 25.5% of respondents accepted the claim. 75% of respondents disagreed with the statement that pupils know very little about the things they have studied, whereas 12.5% agreed and 12.5% were unsure. Similarly, 50% disagreed, 37.5% agreed, and 12.5% were unsure about the belief that pupils' poor level of English language ability is the reason for their lowest level of participation in class.

Table 6: Students' response to the challenges of using English as a medium of instruction

Item	Disagree	Uncertain	Agree
Diminishes conceptual understanding	47.2	11.30	41.5
Lack of familiarity with the topic being investigated	44.1	17.9	37.1
Too much time spent on consumption during class	43.1	17.4	39.5
The lowest degree of engagement in the classes because of poor English language skills	34.4	13.8	51.8

Not being able to comprehend English-language textbooks and lectures	36.9	18.5	44.6
Students who study in a language they don't understand are more likely to memorize information and be less engaged with their coursework.	27.2	13.8	59.0

According to Table 2, most students concurred that there are several difficulties with using English as a teaching language. Among the difficulties, it is noteworthy that 47.2% of the participants did not think that using English as the primary language of education impairs conceptual understanding. However, 11.30% were unsure and 41.5% agreed with the statement. 44.1% agreed, 37.1% disagreed, and 17.9% were unsure that using English as the medium of instruction encourages students to have a poor degree of understanding about the subject they are studying. When asked if using English as a teaching language led to excessive time consumption, 43.1% disagreed, 39.5% agreed, and 17.4% were unsure.

Furthermore, the findings show that 34.4% of respondents did not agree that pupils who are not proficient in English participate in class the least. 51.8% of respondents, however, agreed with this statement, while 13.8% were unsure. The results also showed that 36.9% of students did not agree that using English as a medium of teaching causes students to struggle to grasp English-language textbooks and lectures. However, 18.5% were unsure and 44.6% agreed.

The fact that 59.0% of respondents believed that pupils who study in a language they do not understand typically memorize information and engage with the topic less was not surprising. 27.2% of them disagreed with this, while 13.8% were unsure. Tables 3 and 4 reflect the results of statistical tests that were performed on the data. Additionally, the assessments project mean values that indicate how much students and instructors agree or disagree.

Table 7: Results of descriptive statistics test of tutors' responses

Item	No.	Mean	Std Dev.
Diminishes conceptual understanding	8	2.7500	1.16496
Lack of familiarity with the topic being investigated	8	3.1250	1.55265
Too much time spent on consumption during class	8	2.1250	.99103
Low levels of English language competency result in the least amount of participation in the classes.	8	3.0000	1.19523
The inability to comprehend lectures given in English and English-language textbooks	8	2.8750	.83452
When studying in a language they don't understand, students typically pay less attention to what they're learning and learn by memorization	8	3.5000	1.60357

Table 8: Results of descriptive statistics test of students' responses

Item	No.	Mean	Std. Dev.
Diminishes conceptual understanding	195	2.84	1.54
Lack of familiarity with the topic being investigated	195	2.88	1.39
Too much time spent on consumption during class	195	2.95	1.35

The lowest degree of engagement in the classes because of poor English language skills	195	3.29	1.37
Not being able to comprehend English-language textbooks and lectures	195	3.09	1.33
Students who study in a language they don't understand are more likely to memorize information and be less engaged with their coursework.	195	3.49	1.40

Tutors and students gave different answers about difficulties using English as a teaching language in Tables 3 and 4. According to the investigation, the first item under this theme actually seems to be a topic that both instructors and their pupils agree on. In this case, pupils generated a mean value of 2.84 and tutors created a mean value of 2.7500. This indicates that neither group agrees that using English impairs conceptual understanding. This implies that there was some hesitancy among the tutors and their pupils over whether the assertion was difficult. However, a rigorous analysis of both values shows that many students and tutors disagree with the claim.

Similarly, the findings indicate that a significant portion of them concur that learning in English impairs their conceptual understanding. This indicates that both tutors and their pupils believe that there are no difficulties for students to overcome in the classroom with reference to their academics. But the interview and in-class observations showed different. During the interview, students acknowledged that they have several difficulties. Similarly, observations made in class indicate that pupils' inability to understand materials they read was caused by unfamiliar terminology. They claimed that the unfavourable jargon from some of the technical areas they learn is the cause of this. Thus, it is clear that using English as a teaching language impairs students' conceptual understanding.

This result is in line with that of Othman & Saat (2009), who contend that elucidating concepts in English is one of the main difficulties teachers and students encounter while teaching in the language. In this sense, Othman and

Saat do not just blame pupils for this difficulty; they also blame teachers. Even though some technical topics are not truly understood by pupils, teachers nonetheless fall short of their responsibility to clearly explain them to students. "Sometimes, naturally, there are some terminologies that are a bit strange to students," said one of the instructors who acknowledged in the interview that it is difficult. Students struggle to comprehend in that regard.

According to this teacher, it appears that several technical vocabularies are difficult for students to understand. This is evident from the fact that reading comprehension passages present difficulties for pupils due to the large number of unfamiliar words they include. "Well, sometimes there are some concepts and vocabularies you must use Ghanaian language," said another tutor. The majority of pupils are unaware of what they signify.

This shows that in order to improve students' comprehension, instructors frequently explain various subjects in both the local languages and English. One of the pupils who disagreed, nevertheless, stated that:

Math and science are two examples of subjects that cannot be taught in Ghanaian. The teacher will find it challenging to explain important terminology in that specific subject in Ghanaian. Therefore, I believe that students will benefit from English being used as an official language in the classroom.

Due to the fact that they have no choice but to utilize English for their studies, students frequently believe that it is okay. Nevertheless, the results are consistent with demonstrating that the English language impairs conceptual understanding. It is clear that students' comprehension of topics, particularly those that are highly technical, is limited by the use of English as the language of teaching at colleges of education. In order for pupils to comprehend certain technical ideas, examples and illustrations must be used. If tutors want their students to grasp difficult subjects, others want a combination of English and the local languages.

Once more, a mean score of 3.1250 for instructors and 2.88 for students indicates that both parties do not think that students' lack of understanding about the subjects they study is a challenge. It is important to note, nevertheless, that the level of disagreement varies, with tutors having a higher

mean value. This implies that instructors hold a firmer belief that pupils possess deeper understanding of the majority of the things they study. But the interview and in-class observations showed different.

This indicates that students' understanding of some of the courses they take in class is limited. This is in line with the findings of Agyemang-Prempeh (2018), who found that using English as a medium of instruction encourages pupils to know little about the subject they are studying. "The only difficulty students normally encounter is when it is time to answer questions; they can't express themselves explicitly in English," said a tutor who acknowledged that it is a challenge during the interview.

This respondent's perspective confirms that pupils do, in fact, encounter difficulties. This explains why they can't respond to queries in class. Students' ability to express themselves in class is limited due to their limited understanding of some subjects. It was expected that a student respondent who expressed strong agreement would say throughout the interview that:

Our comprehension suffers when we don't grasp ideas. Both Ghanaian and English should be used in teaching and learning. The usage of Ghanaian languages will improve comprehension.

According to this perspective, several subjects that are formally written in English are not understood by students. Students ask teachers to explain the vocabulary in the local languages since they feel that these books contain words that they do not comprehend.

It is clear that students' lack of understanding of the things they study is one of the difficulties brought on by the use of English as a medium of teaching in colleges of education. Students pursuing this path must possess a thorough understanding of the subjects they learn in education colleges. Teachers must implement useful teaching and learning practices in order to close this gap. A mean score of 2.1250 was obtained from instructors and a score of 2.95 from students in response to the question of whether English causes excessive time consumption.

According to the values, tutors and their pupils mainly disagree that using English during class takes up too much time. Few respondents were unsure; however, some students and tutors agreed with the statement. On the other

hand, observation and interview demonstrated that this claim is problematic. This result supports the claim made by Arhin (2014) that using English as a teaching language leads to unnecessary time consumption. Therefore, a lot of time is devoted to idea clarification in order to improve students' comprehension.

Teaching in English also requires the use of teaching/learning materials and images to enhance comprehension. Much time is spent in this area in order to accomplish this successfully. During the interview, a teacher concurred that "sometimes, naturally, there are some terminologies that are a bit strange to students." In that sense, students find it difficult to understand.

According to this tutor, students' comprehension is limited by the large number of unfamiliar words in the English language. In this sense, students struggle to comprehend such language. According to a student respondent,

Our comprehension suffers when we don't grasp ideas. Both Ghanaian and English should be used in teaching and learning. It is best to use Ghanaian languages to improve comprehension.

Accordingly, this respondent implies that a significant amount of time is devoted to elucidating new words and ideas for pupils to comprehend. Students' responses to questions and their interpretations of texts frequently reflect this. He chooses to use language alternation as a result. This is because, in order to improve students' comprehension, teachers employ a variety of techniques to communicate ideas that can be grasped in a short period of time. In this instance, it takes a lot of time to accomplish that. The results also show that students' low level of English language competence, as indicated by their mean tutor score of 3.0000 and their score of 2.88, resulting in the least degree of involvement in class. This indicates that in this regard, tutors and their students are frequently in agreement. The level of agreement varies, though, with tutors having a greater mean value. This means that tutors see their students' poor level of English language competency more strongly than their students do, which leads to the least degree of interest in class. Given that they are not involved in developing the curriculum, this suggests that students have no say in what is taught in the classroom.

This result is consistent with Othman & Saat's (2009) assertion that one of the top five difficulties teachers have when instructing in English is pupils' poor

English competence. This is also in line with Mchazime's (2001) contention that kids lack the language readiness to receive instruction in English. Therefore, their inadequate proficiency in the language hinders their ability to participate in academic tasks. As a result, he advocated for local language training, which he believes will help local children and improve their performance. Yıldız, Soruç, and Griffiths (2017) further support this by finding that both students and lecturers who use English as a teaching medium acknowledge the challenge of comprehending technical jargon.

They note that in many contexts where English is employed as a language of instruction, poor professional usage of the language is now widely acknowledged as one of the primary causes of unfavourable results. They stated that poor teacher-student proficiency is dangerous because it can result in poor communication, a decline in rapport, and a lack of classroom debate. Some teachers now seriously question the advantages as a result of these challenges. Students suggest that the curriculum be more production-based as a result. To put it another way, it should promote writing and conversation about scholarly subjects.

Additionally, students stated that they needed greater autonomy, more productive learning, and more difficult content. In a similar spirit, language assistance needs to be considered both a fundamental necessity and a fundamental right for EMI students. In order to help EMI students develop their oral presenting skills and general communication talents, they therefore support teaching general English rather than academic English. One of the tutors during the interview stated:

In fact, what I've found is that occasionally, even their proficiency in English might be problematic. I recall asking a question one day while I was instructing. I questioned, "Is it the English?" as a woman attempted to respond but was having trouble speaking. "English is the problem," she added.

According to the tutor, this implies that there is an issue with students' capacity to interact successfully in English throughout class. Their writing of essays for class assignments and tests frequently reflects this. " Another said, "Some students struggle to express themselves in English, so they don't contribute to class."

According to the tutors, this indicates that students are unable to express themselves in English, which prevents them from asking or responding to questions in class. Interestingly, one of the student interviewees stated: "We use the dictionary sometimes, which takes a lot of time, because some vocabularies in English are difficult."

Therefore, it is implied from the students' perspective that their poor English ability is the reason they rely so heavily on the dictionary. Due to their incapacity to speak English fluently, the majority of students neither participate nor pose queries. Despite having great ideas to share in class, most students keep quiet because they struggle with the English language. The findings, however, contradict Rogier (2012), who asserts that teachers and students have different perspectives on language proficiency and issues related to using English as a teaching language.

Rogier claims that although teachers disagree that students' language proficiency satisfies expectations for learning in an English-medium setting, pupils do not believe that studying in English causes issues. Given that pupils do not always believe that learning in English causes issues, Rogier's theory may not be totally accurate. Low English proficiency does present a challenge for students. Therefore, they don't contribute effectively to class.

Students' mean score of 3.09 and tutors' mean score of 2.8750 show that tutors and students have different perspectives on the issue of students' difficulty understanding English-language lectures and materials. There was disagreement among tutors over the difficulty of comprehending English-language textbooks and lectures. However, the average score indicates that the majority of students concurred that it can be difficult to grasp English-language textbooks and lectures.

There are differing opinions regarding the problem of students' inability to comprehend English-language texts and lectures, as indicated by the mean score of 3.09 from students and 2.8750 from instructors. Tutors did not believe that it is difficult to understand English-language textbooks and lectures. On the other hand, the average score indicates that most students concur that it can be difficult to comprehend English-language texts and lectures.

Saat and Othman concur that there is a challenge. They believe that a lack of resources to aid in teaching and learning is the main problem. A tutor who

agrees in an interview state that "Students don't understand if the lesson is more related to concepts." They would understand it better when the Ghanaian language is used.

Because tutors speak a number of languages besides English, students find it easy to understand lessons. However, children struggle to understand what they read due to the difficult terminology.

Additionally, the findings showed that students are more likely to memorize information and engage with their learning materials less while studying a language they do not understand. It follows that a mean score of 3.5000 from tutors and a score of 3.49 from the raw data indicate that both tutors and their students believe that pupils prefer to memorize information and engage with it less. However, there are differences in the degree of agreement, with students having a higher mean value.

This suggests that because students are less engaged with their course subject, they learn by memorizing. This backs up the assertions made by Agyemang-Prempeh (2018) and Arhin (2014) that pupils memorize more material and pay less attention to their books when they learn in English. Due to their incapacity to comprehend English, students are shown to be more engaged with their learning materials, but they also turn to memorization of passages they read. Therefore, the notion that students tend to be less engaged with their learning materials when they study a Memorization is an important method of learning, though. In order to achieve this, Vu & Burns (2014) list four main obstacles to teaching in English. These include students' proficiency, teachers' language skills, suitable teaching strategies, and insufficient resources. They suggest that teachers struggle with language. For example, subject teachers utilize slower speech rates and less flexibility when handling unforeseen situations and other language use issues, despite reports that English as a Medium of Instruction places more demands on their teaching abilities. They struggle with effective self-expression, particularly when it comes to paraphrasing, word-searching, and statement refinement. These elements may have been found to have a negative impact on kids' learning.

They struggle with effective self-expression, particularly when it comes to paraphrasing, word-searching, and statement refinement. These elements have the potential to have a negative impact on kids' learning. Although EMI can

result in successful content learning if instructional strategies are modified, there may be reduced covering of the material and knowledge loss. In this regard, teachers can assume that the mother tongue will serve as a stand-in for instruction when English communication fails. Students' poor English competence causes frustrating communication breakdowns in classrooms, according to observations of interactions. It is clear that students may have difficulty using English as a medium of instruction even when their interpersonal communication skills are strong.

In conclusion, it is observed that respondents typically have differing views about the challenges of using English as a teaching language, with many believing that there can be a variety of challenges when using English in educational settings. In support of this, a reply stated: "There is not much difficulty, because they have been using the English language from elementary school until now, and so they are comfortable with the English language." Another respondent, "Students find it difficult to explain themselves in English," said. Students may occasionally find it difficult to understand certain English vocabulary.

These results contradict the conclusions of Rogier (2012), who asserts that staff and students have different perspectives on language proficiency and issues related to teaching in English classes. Although teachers disagree that students' language proficiency satisfies requirements for learning in an English-medium setting, he believes that kids do not perceive studying in English as problematic. Both teachers and students thought that their English language proficiency improved as they studied, and they typically attributed this to exposure to the language.

He therefore proposed ways to enhance current practice, including more precise language goals, better marketing and tracking of available support services, changing attitudes toward the responsibility of language learning, increasing support for teachers and students, and developing programs and services that would provide students with a more integrated experience of language learning and content. The findings do lend credence to the idea that there are challenges associated with teaching English. The challenges that English as a medium of teaching faces, which are brought on by a number of factors, may be overcome by using the local languages in addition to English

as the medium of instruction and by putting into practice useful strategies that can address the current problems.

Conclusion

According to the study, the difficulties include encouraging students to spend too much time in class, lowering student engagement because of poor English ability, and making it difficult to follow English-language lectures and texts. Less interaction with their educational resources and memorisation are two more. To help teachers employ language alternation pedagogy more successfully and efficiently, it is advised that they be introduced to it. This could raise the level of English proficiency at Ghanaian colleges of education, especially when combined with other existing assistance measures.

The current practice of putting a lot of pressure on colleges of education to ensure that, after admission, students solely get teaching in English is insufficient. The current English-medium instruction method is not questioned by students. Another reason why teachers might not be concentrating on language development is their conviction that they are doing everything in their power to teach the methods and subject and cannot be expected to do more than that. Students begin to feel that they don't have enough time to focus on improving their language skills and that just comprehending the content is enough. It is our responsibility as educators to figure out how to give our pupils an excellent learning and growth experience.

Recommendations

It is advised that teachers be introduced to language alternation pedagogy in order to improve their capacity to use it successfully in the classroom. This strategy could raise students' English proficiency levels at Ghanaian colleges of education when combined with current support services. Additionally, the emphasis currently placed on teaching admissions students only in English is insufficient. By concentrating only on subject delivery, teachers may believe they are doing enough, and students do not challenge this strategy. Students might so place more emphasis on mastering the material than on improving their language skills. Teachers should implement tactics that combine language and topic learning to solve this and provide kids a more thorough education.

Ethical Statement

The Dambai College of Education's Ethical Research Committee in Ghana examined and authorized this study, which included human subjects. Each participant provided written informed permission prior to study participation. Additionally, the book has been proofread to increase its language clarity and accuracy.

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Conflict of Interest

The authors confirm that they have no conflicts of interest concerning the publication of this article.

Authorship Contribution Statement

Wumbei: Formulation of idea, research questions, designing the study, drafted manuscript. Adukpo: Research design, data collection, and analysis, formatting, citations, and compliance with ethical research standards. Gaaku: Review of relevant literature, theoretical framework, editing and proof reading. Joana Emefa Adansi: responsible for editing and proof reading of the manuscript to ensure clarity, coherence, and language.

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Migrants Expectations versus Realities: Ghana's North-South Migration Experiences of the internal migrants in the Kumasi Metropolis

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Abstract

Various studies suggest that rural-urban migration could be part of a collective household survival strategy due to the all-round positive picture of urban life painted to the rural folks. However, the key question is about whether this is really the case. The main aim of the study is to compare the expectations and the realities of north-south migration in Ghana. Based on cross-sectional research with 389 respondents in the Kumasi Metropolis who were sampled using purposive and accidental sampling procedures, the study applied frequency tables and content analysis. The results revealed that migrants move to their destination with high expectations of making a living.

However, these expectations become unrealised which leave migrants in a state of disappointment. It was discovered that migrants are better off in some socio-economic conditions before than after migration. The study recommends that a planned programme and coordinated efforts to bridge the gap between the north and the south be established in order to reduce the north-south migration if not totally eradicated.

Keywords: *Rural-urban Migration, Ghana, Poverty, Unemployment, Coping Strategies*

Introduction

Even though migration is as old as humanity, its theories are relatively recent. These theories were categorised by Hagen-Zanker (2008) based on the level of attention. Individual decisions about migration are the subject of micro-level theories. These ideas include Lee's (1966) push-pull framework, which examines migration from both the supply and demand sides. He contends that both favourable and unfavourable factors at the point of origin and destination encourage and discourage migration, which is further complicated by outside variables like immigration restrictions and influenced by an immigrant's subjective perception of the circumstances. Beyond financial considerations, people might relocate based on intentional choices. Crawford's (1973) cognitive value-expectancy model highlights that the strength of a potential immigrant's migration intentions is determined by multiplying the values of migration outcomes by the expectancies that migration would truly result in these results. The degree of migratory intentions, the indirect effects of personal and societal factors, and the moderating effects of barriers and enablers all play a role in migration.

On the other hand, macro-level theories examine overall migratory trends and provide macro-level justifications for them. According to these neoclassical views, migration is a necessary component of economic growth. Geographical disparities in labour supply and demand, primarily between the urban modern manufacturing sector and the rural traditional agriculture sector, lead to internal migration (Hagen-Zanker, 2008). The models created by Todaro (1969) and Harris and Todaro (1970) to elaborate these theories offer a substantial explanation of the urban unemployment that was observed in many less developed nations. They contend that there are risks associated with migration because arriving in a new city does not guarantee employment.

However, as long as there is a positive predicted real income gap, migrants will still relocate to urban areas. The cost of migration, the urban employment rate, and the strict, institutionally set metropolitan wages all influence the income that migrants expect to get (Hagen-Zanker, 2008; Asante et al., 2018). Despite unemployment in cities, migration is advised due to differences in predicted positive income (Todaro, 1969; Harris and Todaro, 1970).

Alternatively, migratory reasons and persistence can be explained at the meso-level (household or community level) (Hagen-Zanker, 2008). The methods concentrate on either individual migration decisions or collective migration movements. Thus, they believe that although family structures might have an impact on migration decisions, individuals must make the decision to migrate on their own (Hagen-Zanker, 2008). If the family's net gain is positive, they all move. The family only moves if the profits of one person offset the losses of the other, even if just one partner finds a (better) job at the new location. Stark's (1980) work, *The New Economics of Labour Migration (NELM)*, takes a step further in explaining that decisions are frequently made by household members jointly and with the welfare of the family in mind.

There is a strong inclination for people to migrate to places with greater wealth and economic development (Braunvan, 2004). In other words, social amenities and employment opportunities serve as pull factors in metropolitan areas while acting as push factors in rural regions when they are scarce or insufficient (de Haas, 2008). They typically pay less attention to the issues that may arise during the process and are more focused on the advantages they anticipate obtaining from moving. Due to fast population expansion, poor policy execution, and institutional shortcomings, most migrant-targeted metropolitan districts, including Kumasi and Accra, have recently had significant development issues and have become extremely unstable. Hence, the potential of urban areas to meet the expectations of migrants has waded through time. This may affect migrants' wellbeing. Hence, the call for investigation.

Notwithstanding the substantial body of study on migration and urbanisation in Ghana, important questions remain, most notably the question of whether migrants who are less educated and come from lower-class families see an improvement in their standard of living after migration. In the context of Sekondi-Takoradi in Ghana's emerging oil boom, Eduful and Hooper (2019) examine the relationship between housing and urban migration. They

researched on resource boom-driven urbanisation, and the ways that urban migration both forms and is impacted by housing circumstances. Urban social assistance is a topic that Cuesta *et al.* (2021) examined, applying their findings to Ghana and examining the obstacles that lie ahead.

The paper examines the difficulties in developing social assistance programmes that target the urban poor, concentrate on particular urban vulnerabilities, and establish suitable payment schedules in urban regions. In order to shed light on the origins of young people's rural-urban migration from northern to southern Ghana, Adaawen and Owusu (2013), Owusu and Teye (2014) and Edwin and Glover (2016) looked at the factors that influence this movement. The majority of research neglect to examine whether or if migrants are better off now that they have moved. Thus, this gap is the source of this study.

This study is vital and relevant given Ghana's urban population's rapid growth. According to estimates from the Africa Housing Finance Yearbook (2023), Ghana has a housing deficit of more than 1.8 million units. Slums have grown and developed in Ghanaian cities as a result of urban migration, which has made the housing crisis worse (Danso-Wiredu and Loopmans, 2013; Eduful and Hooper, 2019). Also, numerous research on Ghana's rural-urban migration concurs that the desire for better employment possibilities in Ghana's cities over those in the country's rural areas is one of the main causes of internal migration. However, a number of studies conducted in various emerging nations have noted a rise in rural-urban mobility and a dearth of employment opportunities in urban areas (Osei-Boateng, and Ampratwum, 2011; Tacoli, McGranahan, and Satterthwaite, 2015; Kwankye, 2012; Awumbila and Ardayfio-Schandorf, 2008; Awumbila, 2014; Awumbila, Owusu, and Teye, 2014; Eduful and Hooper, 2019; Cuesta et al., 2021). Various studies suggest that rural-urban migration could be part of a collective household survival strategy due to the all-round positive picture about urban life painted to the rural folks. However, the key question begging for an answer is, is this really the case? This paper's contribution stems from its efforts to better understand the answers to this question. Hence this study seeks to investigate migrants' expectations against their realities in the Kumasi Metropolis.

The rest of the study is structured as follows. Section 2 looks at the policies and programmes put in place by various governments to cushion migrants and

how these have been impactful. Section 3 discusses methodological issues including study design, sampling and data collection methods and how the analysis was carried out. Section 4 situates the analysis in perspective comparing the findings to previous studies. Section 5 concludes and makes relevant recommendations.

Review of migration policies and programmes in Ghana

Ghana does not have national migration policy. In April 2016, Ghana formally launched a national policy on migration and an implementation plan was put in place but since then, something concrete is yet to come from this plan. Schraven (2010) held the opinion that the initiatives that have been put in place over the years to date are to blame for Ghana's present migration problems. The North's socioeconomic status has been comparatively disadvantaged due to the pattern of development strategies implemented by different administrations in succeeding development projects. Since succeeding administrations maintained the colonial administration model of development and concentrated development initiatives in the south at the expense of the north, the north-south movement remained largely unchanged from the colonial period.

The North Educational Trust Fund was established by the CPP-led government in an effort to address the underdevelopment in the north. Over the course of eight years, enrolment increased dramatically from 20,000 to 90,000 (DES UK, 2010). In order to provide migratory workers in the north with jobs, import substitution policies led to the creation of state-owned businesses and agro-industrial facilities like the rice mill in Bolgatanga and the tomato and meat factory in Pwalugu. Internal migration decreased at this time, mostly from the north to the south (Schraven, 2010). To guarantee a consistent supply of raw materials for regional industry, farmer-based incentive programmes and significant subsidies were implemented for agricultural inputs. To ensure year-round farming, work on building irrigation dams was initiated (Laube, 2007). The 1966 coup of Dr. Kwame Nkrumah caused difficulties for the northern development goal.

During the colonial and post-independent periods, Ghana became a destination for immigrants from other West African nations, including the Ivory Coast, Nigeria, Mali, Upper Volta, and Niger. Immigrants were drawn to the nation by the economic growth as well as the thriving mining and cocoa industries.

8.5% of the population in 1960 was foreign-born (Nabila, 2003). The availability of inexpensive labour from interior countries was a contributing factor in Ghana's cocoa sector development (Manuh, 2006). According to Awumbila *et al.* (2008) and Bosiakoh (2008), Ghana became a net immigration country.

North-South Migration Movement was affected by the Alien Compliance Act and Ghana Business Registration Act number 334, which were introduced in August 1970 by Prime Minister Dr. Abrefa Busia. All foreign nationals without residency permits were required to depart under the Act (Yeboah, 2008) and 100,000 foreigners were ordered to leave consequently (Gould, 1974). Due to the expulsion of foreigners from Ghana, a void in the labour market was filled by Ghanaian women, mostly from the northern and Volta areas (Yeboah, 2008).

The north-south migration movement was further intensified during President Rawlings' administration by the execution of the IMF and World Bank's Structural Adjustment Programme (SAP). The Ghanaian economy was developing at a negative rate and was going through an economic crisis in the early 1980s (Anarfi *et al.*, 2003). Acute crop failure and a protracted period of political instability brought on by frequent government changes were the causes of the economic crisis. The government implemented the World Bank and IMF's Structural Adjustment Programme (SAP) in an attempt to stabilise the faltering economy. This led to historically high public sector spending cuts, widespread layoffs, and the removal of subsidies for social services like transportation, health care, and education. Low output was the outcome of the elimination of agricultural input subsidies (Konadu-Agyemang, 2000; Yeboah, 2008). Layoffs that affected low-level public sector workers in the north, such as labourers, watchmen, messengers, and civil servants, exacerbated the region's economic situation (Konadu-Agyemang, 2000; Abdul-Korah, 2007). The administration of President John Agyekum Kufuor started a several initiatives to stop the flow of migrants from the north to the south. To meet the development needs of the then three northern regions, the Northern Development Fund (NDF) was founded. The implementation of social protection initiatives including the National Health Insurance Scheme (NHIS), the National Youth and Employment Programme (NYEP), and Livelihoods Empowerment against Poverty (LEAP).

It has been established that LEAP has been implemented as a national social protection programme with the aim of providing a buffer against extreme hardships for the poor by strengthening the ability to withstand vulnerability and have positive impact on children education and health (Handa, Park, Darko, Osei-Akoto, Davis, and Daidone, 2013). However, eligibility for these pro-poor activities is limited; in order to participate in LEAP, a person must be extremely impoverished and over 60 years. The minimum requirement for NYEP is a junior high school graduation certificate, and in order to receive basic healthcare, NHIS beneficiaries must pay premiums. All of these social protection measures may be able to deter young people from moving south, where they believe there are more economic prospects.

The Savanna Accelerated Development Authority (SADA) was founded by the National Democratic Congress (NDC) in 2010 under the direction of Prof. Evans Atta Mills. The Ghanaian government's adoption of the SADA law of 2010, Act 805, showed his commitment to closing the developmental divide between the north and south. SADA seeks to close the development disparities between the north and south by boosting investments in the savanna region. A bold Development Authority, Modernisation of Agriculture, Private Sector Development, Strategic Infrastructure Development, Livelihoods, Social Protection, and Environmental Resilience are the five pillars around which SADA is built, according to Rumnet (2011). SADA includes the northern portions of the then Brong Ahafo and Volta regions, as well as the Upper East, Upper West, and Northern regions. Despite being an admirable policy programme aimed at strengthening the north, SADA's effectiveness has been undermined by incompetence and corruption, rendering its impacts intangible.

The Nana Addo Dankwa Akufo-Addo government of the NPP also brought in series of good policies aimed at improving rural livelihoods and reducing rural-urban migration though some did not materialise. Some of these policies include the Free SHS, Planting for Food and Jobs, One Village One Dam, One District One Factory, among others. However, almost all of these policies fall short of being impactful in the rural areas especially due to bad implementation.

Out-migration of the youth from the north has been exacerbated by the colonial government's purposeful underinvestment in the three northern regions, as well as by succeeding administrations' disproportionate

concentration of development in southern Ghana and biased urban policies favouring wealthier regions. The pre-colonial and colonial establishment of northern Ghana as an economic periphery, together with poor governance from civilian to military administration, are the main causes of the long-term economic stagnation. Northern migrants will continue to be drawn to the highly industrialised cities of Accra, Kumasi, and Takoradi because of their abundance of economic opportunities.

Ghana is among the emerging nations experiencing a growing urbanisation. As a result, metropolitan areas see a concentration of development activity at the expense of rural communities. The lack of proper infrastructure across the board, including roads, schools, and hospitals, puts more strain on the ones that are available. The rate of unemployment is rising as a result of the lack of job creation to match the rate of population growth. As a result of more individuals pursuing subpar goods and services, there is also an increase in the cost of consumable goods and services. Because of this, low-income migrants find it challenging to adjust to their new circumstances.

The ILO labour treaties contain the International Covenant on Economic, Social, and Cultural Rights. Socioeconomic rights have been neglected in favour of civil and political rights by governments. The right to food and health must be understood as part of the right to life. Ghana's constitution's Chapter Six on Economic Rights is ambiguous and always dependent on funding availability for implementation. This forces governments to shirk their duties and responsibilities to give their people fulfilling lives.

One of the factors contributing to urbanisation is migration, according to the research (Asante *et al.*, 2018). Solid waste generation, pressure on housing, school facilities, transportation, traffic congestion, crime, and immoral and indecent lifestyles are some of the issues that come with urbanisation. While both immigrants and non-immigrants deal with these issues, migrants are more susceptible. The process of solving these issues has not been without challenges. The International Convention on the Protection of All Migrant Workers and Members of Their Families has been ratified by Ghana. This crucial agreement for the best possible protection of all migrants has not yet been domesticated. Regarding internal migration, Ghana does not have a migration policy. For a nation like Ghana, where data points to a rising rate of internal migration, this is quite regrettable. It is imperative to devise

efficacious policies, initiatives, and programmes that offer enduring resolutions to these issues.

Both internal and international migration have been discovered in Ghana's available migration literature (Awumbila, 2008; Awumbila *et al.*, 2009; Yeboah, 2008; PPVA, 2011). The majority of internal migrants from Ghana labour in the unorganised sector, where their pay is insufficient to raise their level of living. Some migrants give their employers inexpensive labour in order to make a life. As this is going on, migrants must pay for everything they use in the city, including food, lodging, and even convenience stores, the costs of which are so high that they are unaffordable for them.

Methods

Data from impoverished north-south migrants in the Kumasi Metropolis were gathered using a cross-sectional survey design. A mixed-method approach, which combines qualitative and quantitative techniques for data collecting and analysis, was used. This is to complement the limits of both types of data and provides a more comprehensive understanding of a study subject than either approach alone (Creswell, 2010).

Sample size and sampling procedure

The purposive sampling technique was first used to select study sites (Kejetia, Central Market, Adum, Asafo market, Manhyia and Bantama Market) in the Kumasi Metropolis. Afterwards, accidental sampling technique was used to select 389 respondents. Purposive and accidental sampling were used to recruit the respondents because the targeted north-south migrants work in these commercial areas of Kumasi, and they could easily be identified there. The sample size was selected using Yamane (1967) formula based on the 2010 population and housing census which indicated that 91693 north-south migrants were living in the Kumasi Metropolis.

Data collection approach

The data were collected by administering questionnaires with individual migrants who constituted the key unit of analysis. Moreover, two focus group discussions were held in each selected location, each group containing a minimum of six and maximum of ten members. This was to ensure the free flow of responses in the discussions and to allow each gender category to relate their experiences without intimidation. In addition to field notes, interviews

were audio recorded with participants' informed agreement. The intention was to prevent important information from being lost during notetaking by giving the researcher the chance to record participants' statements in their own words and review them later.

Data analysis method

The data gathered was analysed using descriptive statistics (frequency tables and charts) and content analysis. Data that could not be quantified were recorded, transcribed and used to support the quantitative data.

Results and Discussions

Demographic characteristics of respondents

The ability of migrants to exercise choice and access chances to strengthen their asset base and livelihood strategies is significantly impacted by their demographic features, including age, gender, and level of education.

Sex of respondents

From Table 1, out of the 389 total respondents, 130 representing 33.4 percent were males and 259 representing 66.6 percent were females. Hence, there were more female migrants than male migrants in the study. This is supported by the view of some scholars that modern-day north-south migration flow is largely dominated by young girls and women in their reproductive years (Agyei *et al.*, 2015; Shamsu-Deen and Alhassan, 2014).

Age of respondents

The study found that the North-South migration predominantly involves people who are in their youthful age. As shown in Table 1, the age of majority of the respondents (327 representing 84.05 percent) ranges from below 18 years to about 30 years, 30 of the respondents representing 12.34 percent were between 31 to 40 years while 14 of the respondents' representing 3.60 percent were above 40 years. This shows that majority of the north-south migrants who responded to the questionnaire are youthful. The implication is that; the youth are those who are mostly into this kind of migration. This is in line with what Shamsu-Deen (2013) and Agyei *et al.* (2015) observed in their work that many of the migrants in southern Ghana are in their youthful stages with majority falling within the ages of 10-35 years. It is likely that such people migrate for livelihood security.

Table 1: Demographic and socio-economic characteristics of respondents

Characteristics	Category	Frequency	Percentage
Sex	Male	130	33.4
	Female	259	66.6
Age	Less than 18 years	43	11.1
	18 – 25 years	193	49.6
	26 – 30 years	91	23.4
	31 – 35 years	30	7.7
	36 – 40 years	18	4.6
	Above 40 years	14	3.6
Marital status	Single	163	41.9
	Married	211	54.2
	Divorced	10	2.6
	Separated/Abandoned	5	1.3
Number of Children	None	150	38.6
	1 – 3	209	53.7
	4 – 7	28	7.2
	8 and above	2	0.5
Level of Education	No formal education	232	59.6
	Basic school	155	29.6
	High school	35	9.0
	Others	7	1.8
Length of Stay in Kumasi	Less than 1 year	156	40.2
	1 – 4 years	141	36.2
	5 – 9 years	48	12.3
	10 and above years	44	11.3

Source: Field Survey, (2017)

Marital status and number of children

North-south migration is taking another step where more married people are getting involved in the process. The results indicate that, majority of the respondents specifically 211 (representing 54.24 percent) were married while 163 of the respondents were not married. Furthermore, 10 respondents representing 2.6 percent had divorced and 5 representing 1.3 percent had separated. It is quite uncommon that married respondents migrate more than single people. Hence, this result departs from past studies such as Afriyie *et al.* (2015) who found the contrary in their study. The seasonality of

employment in the north as well as inability to get money to pay their children's school fees were some of the reasons why most married people are now involved in north-south migration.

Also, the results indicated that 209 of respondents representing 53.7 percent had from one to three children while 28 of the respondents, representing 7.2 percent had from four to seven children. Furthermore, two of the respondents representing 0.5 percent had eight or more number of children. It was quite surprising to see majority of the respondents travelling down south even though they had children. There is the likelihood that such people could not cater for their children hence migrated to seek greener pastures to be able to take care of themselves and support their children's' education. However, 150 representing 38.56 percent were without children.

Level of education

The north-south migration is predominantly among the youth who have little or no education (Mahama, 2013). The research findings showed that most of the respondents had no formal education as indicated in Table 1. According to the results, 232 respondents (representing 59.64 percent) were without formal education. For those with formal education, 155 representing 29.6 percent had attained basic education while 35 of the respondents' representing 9.0 percent have had secondary education. Seven (7) respondents representing 1.8 percent had attained other levels of education which included Technical, Vocational, University, Polytechnic and Training College education. This trend agrees with similar findings by Frempong-Ainguah *et al.* (2009) that, majority of the youth who migrated down-south from the rural areas of Northern Ghana had little or no education. Despite the free basic education policy in Ghana and the social interventions such as the capitation grant, free school uniforms, school feeding programme in some schools among others to support education, most of the migrants have not taken advantage of them. According to Yeboah and Appiah-Yeboah (2009), the low educational attainment in the three regions of the north is as a result of poverty and culture. Most of the migrants were unskilled and lacked any form of formal education. However, job opportunities available for the urban poor including migrants require employable skills (Osei-Agyemang *et al.*, 2014). This makes it difficult for them to obtain job in the formal sectors and semi-formal sectors.

Areas of operation of migrants in the Kumasi metropolis

Migrants operate in areas where they can easily get employed. Table 1 shows that 98 of the respondents representing 25.2 percent operate at Adum, 90 of the migrants' representing 23.1 percent operate at Manhyia. Moreover, 75 of the respondents representing 19.3 percent operate at Asafo, 56 of the migrants, representing 14.4 percent operate at the Central Market, 38 of the respondents' representing 9.8 percent operate at Kejetia, and 32 of the respondents representing 8.2 percent operating at Bantama. This means that most of the migrant respondents interviewed operate at Adum, Manhyia and Asafo. These are places where commercial economic activities are predominant. Due to their limited livelihood options for these places offer them some opportunities in the informal sector to engage in low-income activities. However, as shown in Table 1, the majority of the respondents (76.3 percent) have not stayed in these areas for five years and only few of the migrants (23.7) have stayed in these areas for five years or more.

Factors that influence people to migrate from the north (Push Factors).

There are push factors in the rural areas that force migrants out of their place of origin (Darko, 2013). These factors are influenced by the strength of the local economy. A lot of people migrate because of dislike of socio-economic conditions which confronts them in their places of origin especially when they see better opportunity elsewhere. The push factors that cause north-south migration in the study area include poor weather condition, inadequate health facilities, poverty (low income) inadequate educational facilities, poor housing, infertile land and unemployment. As shown in Table 2, the most important push factors include unemployment and poverty (low income).

Table 2: Factors that Influence People to migrate from the North (Push Factors)

Factors	Responses and Magnitude									
	Very High		High		Low		Very Low		Never	
	#	%	#	%	#	%	#	%	#	%
Poor weather condition	22	5.7	45	11.6	34	8.7	10	2.6	278	71.5
High rate of unemployment	138	35.5	198	49.6	16	4.1	8	2.1	34	8.7
High rate of poverty (low income)	193	49.6	158	40.6	16	4.1	2	0.5	20	5.1
Outmoded cultural practices	5	1.3	12	3.1	26	6.7	29	7.5	317	81.5
Inadequate health facilities	8	2.1	11	2.8	25	6.4	27	6.9	318	81.7
Inadequate educational facilities	11	2.8	12	3.1	27	6.9	26	6.7	313	80.5
Infertile land	10	2.6	32	8.2	38	9.8	24	6.2	285	73.3
Poor housing	7	1.8	13	3.3	29	7.5	19	4.9	321	82.5
Non existing social amenities	12	3.1	9	2.3	25	6.4	18	4.6	325	83.5

Source: Field survey, (2017)

Generally, unemployment and underemployment are major determinants of migration in these modern days. The probability of one migrating to a new place to seek a job is very minimal if the person is gainfully employed. Table

2 shows that, majority of the respondents (85.1 percent) noted that, unemployment situation was high in the home region and that influenced their movement to the Kumasi Metropolis. The respondents explained that,

the major employment opportunity in our place of origin is farming but before you do it you need capital to start and even if you want to do it in a small scale, you cannot even get money to take care of yourself. Another person added that farming activities could not give them enough money.

Others noted that when you sell you do not get people to patronise the goods. These assure them unrealistic expectation in livelihood activities. It is in this vein that Afriyie *et al.* (2015) explained that the desire to attain a sustainable livelihood coupled with the harsh economic conditions such as unemployment in the north has caused the young females to migrate southward. It could be said that monotony of job at the place of origin may be a contributing factor to north- south migration. This is evident in the work of Owusu (2007) that most people move from the rural areas to the cities for variety of job opportunities that are available.

Others explained that they are students, and they needed money to continue their education but their parents cannot afford their fees so they travel down south to work in order to get money to supplement what their parents will give to them.

Moreover, migration to a larger extent is seen as an investment that most people use to overcome poverty. People will migrate if their poverty situation is worsened and try to seek better livelihood elsewhere. Table 2 shows that, majority of the respondents (90.2 percent) admitted that poverty rate (low income) was high/very high in their home region hence migrating to Kumasi Metropolis. One of the respondents noted that,

“in the north, you only get what to eat from the farm but money to buy some other things was not easy to come by.”

In finding out the causes of outmigration from Nanumba District, Mahama (2013) made similar statement that, people migrate to overcome economic problems and accumulate capital for investments in rural areas, increase their income and to increase their sources of income. There is the likelihood that,

many youths who are not able to make ends meet will continue to migrate out of poverty. Kwankye (2012) agreed with this finding by positing that, due to the problem of the lag in development and the fall in agricultural productivity, many families in northern Ghana see migration as an avenue to earn some income in the form of remittances. This affirm that majority of the respondents were below the national upper poverty line of GH¢1314.00 prior to their migration and explains why the northern part of Ghana recorded the highest incidence of poverty in the country (GSS, 2014). It is likely that majority of migrants could not meet their basic socio-economic needs at their place of origin.

Migrants' expectations that influence them to migrate from the north to Kumasi metropolis

The propensity for people to migrate towards areas of wealth and economic prosperity is very enormous (Braunvan, 2004). There were expectations that drew the attention of the respondents to Kumasi Metropolis. Darko (2013) identified such expectations as pull factors at the destination that catch the attention of migrants to urban centres. Having high expectations is influenced by the strength of the local economy. Respondents expected Kumasi Metropolis to offer opportunities so that they can meet their basic needs. Among them include the following: good weather condition, employment opportunities, low poverty (high income), good cultural practices, adequate educational facilities, good social amenities, fertile land, adequate health facilities, good houses and remittance sent home by colleagues. The most critical among them are employment opportunities, low poverty (high income), and remittance sent home by colleagues. This shown in Table 3 below.

Table 3: Migrants Expectations that Influence them to migrate from the North to Kumasi Metropolis.

Factors	Responses and Magnitude									
	Very High		High		Low		Very Low		Never	
	#	%	#	%	#	%	#	%	#	%
Good weather condition	8	2.1	15	3.9	36	9.3	16	3.9	315	81.0
Employment opportunities available	160	41.1	168	43.2	17	4.4	4	1.0	40	10.3
Low rate of poverty	196	50.1	149	38.3	15	3.9	0	0	29	7.5
Good cultural practices	5	1.3	12	3.1	33	8.5	16	3.9	324	83.3
Good access to health facilities	10	2.6	10	2.6	36	9.3	15	3.9	318	81.7
Good access to educational facilities	10	2.6	5	1.3	31	8.0	17	4.4	326	83.8
Fertile land	8	2.1	10	2.6	35	9.0	15	3.9	321	82.5
Availability of good housing	9	2.3	8	2.1	33	8.5	19	4.9	320	82.3
Presence of social amenities	9	2.3	4	1.0	29	7.5	12	3.1	335	86.1
Remittance sent home by colleagues	140	36.0	41	10.5	26	6.7	9	2.3	173	44.5

Source: Field Survey, (2017)

Employment opportunities at a destination act as an incentive for people to migrate to a new area. From Table 3, majority of the respondents representing 84.3 percent noted that availability of employment opportunities in the host region highly influenced their migration to the Kumasi Metropolis. The respondents explained that there are job opportunities available in the metropolis due to commercial activities that go on in the city and this attracted them to this area. To them, they have strong belief that when you sell, people buy and any job that you do generate money. It has been admitted by several scholars that, availability of jobs acts as major pull factor in urban centres while meagreness of these acts as push factors in rural communities (Mahama, 2013; de Haas, 2008).

Similarly, many people perceive that migration serves as a means to run out of poverty and this perception is generally evidenced in this study. The results in Table 3 show that, majority of the respondents representing 88.3% indicated that relatively high level of income in the host region influenced their movement from their place of origin to the Kumasi Metropolis. It was explained that inadequate income at the home region influenced their decision to move southward where poverty level is relatively low. Kwankye and Anarfi (2011) posited that, migration helps to minimise the effects of economic shocks on household welfare through remittances that are sent home. This is evidenced in the work of Mahama (2013) when finding causes of outmigration from Konkomba and Nanumba District that, people migrate as an investment to overcome economic problems in rural areas, increase their income and to increase their sources of income.

In addition, remittances that most migrants send home cannot be overlooked when discussing drivers of migration. Such items entice other able young men and women to join the migration stream. From Table 3, it is noted that quite a significant number of respondents (181 representing 46.5 percent) admitted that remittance sent home by colleagues from host region influence their movement from the northern Ghana to the Kumasi Metropolis. However, quite many migrants (173 representing 44.5 percent) noted that this did not influence their movement from their home region. The explanation was that colleagues who travel come home with expensive clothing and other items to show off that is why they decided to follow them. Others too come or send money home to support family project, pay hospital bills etc. According to

some of the respondents, they were influenced by their friends who said there are better condition of life in the south where they will get jobs and more money. There is the likelihood that a household may invest in their members to migrate because Adaawen and Owusu (2013) noted earlier that, migration is a coping and livelihood diversification strategy to poverty and poor agricultural productivity in Northern Ghana. Therefore, households may invest in their members to migrate so that they can relieve the family in times of need.

Relating the results to Lee's (1966) push-pull framework and Crawford's (1973) cognitive value-expectancy model, unemployment, underemployment, and poverty are the main unfavourable factors at the place of origin that discourage young men and women from staying, thereby acting as push factors. These conditions worsen their livelihood prospects, making migration the ultimate alternative.

On the other hand, the pull factors are the perceived expectations that attract migrants to their destinations, influenced by the cognitive value-expectancy of the migrants. The findings indicate that the most influential factors in choosing a destination include employment opportunities, lower poverty levels (higher income), and remittances sent home by peers. These findings align with Adaawen and Owusu (2013), who assert that migrants strongly anticipate earning income to remit and support the well-being of their families back home.

Realities on the ground at the migrants' region of destination

Table 4 represents the realities faced by migrant respondents in the Kumasi Metropolis. This was necessary to verify whether their living conditions based on their perception on urban condition exist in the Metropolis. Indicators such as unemployment situation, cost of accommodation, cost of health care, cost of education, cost of food, and cost of clothing, utility charges, poverty situation and general cost of living were used to examine these conditions. These specific conditions are often not examined by migrants prior to their decision to migrate to the cities. It was observed that, most migrants get trapped in high rate of unemployment, growing incidence of urban poverty and high cost of living. This made the expectations in the metropolis unrealistic. For example, from Table 4 in a multiple response inquiry, 52.7 percent of the migrant respondents (205 respondents) admitted that

unemployment situation at their destination was either high or very high; 84.8 percent of them (330 respondents) noted that cost of living generally was either high or very high and the incidence of poverty was considered either high/very high by about 65 percent of the migrants. A lot of literatures support that, rapid urban growth has led to unprecedented increase in unemployment situation, sanitation problem, rising cost of living, urban accommodation problem and urban food security, supply and distribution systems (Afriyie *et al.*, 2015; Adaawen and Owusu, 2013).

Even though migrants have established the fact that their expectations in the current destination are unrealistic and neck-breaking, comparing the conditions in the cities studied in the Kumasi Metropolis, it is observed from Table 4 that the migrants in Adum, Bantama and Manhyia experience much disappointing situation in terms of cost of food, utility charges and general cost of living according to their self-reported cases. Employment situation for migrants is significantly good in Adum and Asafo than the rest of the study areas. The reason is that most of the economic activities are concentrated in these areas which create job opportunities for most migrants. These areas are where porters and fish mongers are concentrated. Generally, it can also be observed from Table 4 that those in Central market experience relatively better condition than other areas studied while those in Bantama experience worse condition.

Table 4: Cross Tabulation showing Migrants Perception on Volatile Urban Situation

Real Conditions at Destination	Areas of Operation						
	Rank	Adum	Asafo	Manhyia	Central Market	Kejetia	Bantama
Unemployment situation	High	43	35	50	29	21	26
	Low	55	40	40	27	17	6
Cost of accommodation	High	86	65	81	49	33	28
	Low	12	10	9	7	5	4
Cost of health	High	50	62	48	32	27	19
	Low	48	13	42	24	11	13
Cost of education	High	54	48	44	27	23	19
	Low	44	27	46	29	15	13

Cost of food	High	91	64	85	35	35	29
	Low	7	11	5	21	3	3
Utility charges	High	80	62	70	35	35	27
	Low	18	13	20	21	3	5
Cost of clothing	High	69	52	67	25	25	18
	Low	29	23	23	31	13	14
Poverty situation	High	60	56	57	29	26	23
	Low	38	19	33	27	12	9
General cost of living	High	88	67	71	38	35	32
	Low	10	8	19	18	3	0

Source: Field Survey, (2017)

Socio-economic situation of the migrants before and after migrating to their current destination

To be better informed about the disappointment that migrants found themselves in at their destination, the researchers present the results on the socio-economic situation of the migrant respondents before and after migrating to their current destination. This was necessary to verify whether their living conditions based on their self-reported cases are improving or worsening. In order to examine these indicators such as employment situation, accommodation, health conditions, sense of belonging and relationship with family members, nutrition, income level and general wellbeing were used.

Generally, it can be argued that the socioeconomic conditions of majority of migrants for most of the indicators used have seen improvement. For example, considering employment status, about 37.8 percent and 68.9 percent of the respondents respectively admitted that their employment status before and after migration was good as shown in Table 5. Similarly, with regard to income level, 26 percent of the migrant respondents indicated that their situation before migration was good, but 63 percent noted that their income level was good after migrating. It therefore implies that migration has led to the betterment of the migrants even in the face of the volatile urban scenarios. However, majority of the migrant respondents claimed that their

accommodation condition, health condition, access to regular and quality food and sense of belongingness were better before migration than after migration as shown in Table 5. This implies that improved employment status and increased income levels have not translated into improved standards of living and wellbeing for most of the migrants at their host urban destination.

Table 5: Socio-economic situation of the migrants before and after migrating

Indicators	Responses and Magnitude											
	Before						After					
	Good		Poor		Neutral		Good		Poor		Neutral	
	#	%	#	%	#	%	#	%	#	%	#	%
Employment situation	147	37.8	178	45.8	64	16.4	268	68.9	114	29.3	7	1.8
Accommodation situation	340	87.4	34	8.7	15	3.9	160	40.1	219	56.3	10	2.6
Health care	272	70.0	31	8.0	86	22.0	204	52.4	81	20.8	10	26.7
Sense of belonging	345	88.7	26	6.7	18	4.6	305	78.4	65	16.7	19	4.9
Access to good nutrition/ food	338	86.9	41	10.5	10	2.6	285	73.3	86	22.1	18	4.6
Cost of clothing	250	64.3	120	30.8	19	4.9	300	77.1	64	16.5	25	6.4
Income level	101	26.0	275	70.7	13	3.3	245	63.0	120	30.8	14	3.6
General wellbeing	226	58.1	91	23.4	72	18.5	250	64.3	106	27.2	33	8.5

Source: Field Survey, (2017)

Conclusion and Recommendations

This study has explored north-south migrants' expectation verses reality in the Kumasi Metropolis. The study found out that females are mostly involved in north-south migration than their male counterparts. Again, most of the migrants were married with children which is contrary to existing findings of some researchers. Furthermore, most of the migrants who were involved in the north –south migration was in their youthful age with little or no formal education; hence, they were mostly employed at the informal sector where they engage in porting, food vending, petty trading, domestic work, hawking etc with low-income levels.

The study revealed that pull and push factors were the drivers that influence north-south to the Kumasi Metropolis. Push factors were identified as the constraints at the home region that make the place highly unbearable for

people to live hence look for alternative livelihood elsewhere. The study identified unemployment and poverty (low income) as dominant push factors that have led to the continuous movement of people from the northern part of Ghana to the Kumasi Metropolis.

The research also identified some socio-economic conditions in the metropolis that make lives unbearable in the city. Among them include high rate of unemployment, housing deficit, high rate of poverty, rising cost of living, high interest rate, high cost of food, etc. These situations make expectations of migrants highly unrealistic.

Drawing on the results from the survey, it can be concluded that, even though the employment situation and income level of north-south migrants were improved after migration, they were better off in their hometowns before migration and worse off in their destination sites after migration.

The research recommends that central government in partnership with other agencies should plan and implement programme that can bridge the development gap between the north and the south so as to reduce the north south migration if not totally eradicated. This could be done by establishing vocational institutions that will absorb these people.

The Kumasi Metropolitan Assembly in collaboration with immigration service and Ghana Statistical Service Department should provide adequate data on migrants who are found in the Metropolis at any point in time. This will help in proper planning of the city and the country at large. This can be done by strengthening internal migration laws and also frequent conduction of population and housing census.

Ethical Statement

The study took into account all ethical standards.

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Authorship contribution:

Oppong-Mensah: Introduction, literature and the summaries and conclusion of the article. Atuilik: Methodological and analysis of article. Adjei: Supervision. Konadu: Data collection, proofreading.

Conflict of Interest

The authors report no conflict of interest whatsoever.

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Transitivity Analysis of Process Types in the 2012 Independence Day Anniversary Speech of John Evans Atta Mills

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Abstract

This study examines the transitivity process types in the 2012 presidential Independence Anniversary speech delivered by John Evans Atta Mills. The analysis involves segmenting the speech into individual clauses and conducting a thorough clause-by-clause examination. The primary attention is on the transitivity choices made by President John Evans Atta Mills in constructing his 2012 independence anniversary speech and the communicative functions of the selected transitivity process types. The data for this research is drawn from the 2012 independence anniversary speech delivered by John Evans Atta Mills. The study identified five main process types. First, material processes dominate the speech, accounting for 63.6%, suggesting that Mills emphasises actions and events in narrating the nation's journey to independence more than other aspects of experience. Second, relational process types, which make up 20.9% of the speech, are used to assign attributes to the celebration and highlight key facts about Ghana's independence and its significance to the present.

Third, mental processes constitute 10% of the speech, employed to engage Ghanaians in reflecting on the events surrounding the attainment of independence. Fourth, verbal processes represent 5.5% of the speech, used to convey collective gratitude and appreciation to the forefathers who secured independence for the country. Behavioural and existential processes were not present in the speech. The study concludes that transitivity analysis reveals the way orators and authors encrypt their mental representation of their world view in language and the way they their experiences are conveyed around them.

Keywords: *Independence Anniversary, Transitivity, Material, Relational, Verbal, Mental, Existential Processes*

Introduction

Independence Day speeches serve as a platform to celebrate the nation's successes and achievements in overcoming past challenges, while also outlining aspirations for the future. These speeches have become an essential part of the political discourse, holding significant relevance for the people of Ghana. Despite their importance, Independence Day speeches have received little attention in research, particularly in the field of linguistic studies.

Recent studies on transitivity analysis of speeches delivered by presidents in Ghana have primarily based on topics including the State of the Nation Address (SONA) (Adjei, Ewusi-Mensah & Okoh, 2015; Dadugblor, 2016), New Year Messages (Anderson, 2014), Campaign Speeches (Adjei-Fobi, 2011; Mensah, 2014), and speeches delivered at International Meetings (Agyekum, 2004; Djabatey, 2013). The application of transitivity theory in speech analysis has been explored by Adjei-Fobi (2011) and Boakye (2014) in the context of Inaugural Speeches, by Anim-Ayeko (2012) in Political Advertisements, and by Adjei and Ewusi-Mensah (2016) in Farewell Speeches. The limited research on the linguistic analysis of Independence Anniversary speeches in Ghana includes work by scholars such as Mensah (2014) and Mwinwelle (2017). Using Leech and Short's (2007) framework of stylistic and linguistic categories, Mwinwelle (2017) performed a lexico-stylistic analysis of John Mahama's speeches, including his 2013 Independence Anniversary speech. Mensah (2014) used Lloyd Bitzer's (1968) framework on situation and Olbrechts-Tyteca's (1969) framework on argument to analyze Kwame Nkrumah's political speeches, particularly his

historic 1957 speech on independence. Additionally, Appiah (2015) applied Halliday's transitivity theory in a Critical Discourse Analysis (CDA) of Jerry John Rawlings' June 4 Speeches.

Language politeness was examined by Adekunle and Adebayo (2017) in eight speeches given by Nigerian heads of state on the occasion of the nation's independence anniversary between 1960 and 2011. Furthermore, a transitivity study of a speech given by Pakistan's Prime Minister, Imran Khan, during the UN General Assembly was carried out by Mushtaq et al. (2020).

. Further studies using transitivity theory include Ali et al.'s (2021) analysis of Nelson Mandela's speeches and Yuqiong and Fengjie's (2018) examination of David Cameron's speech during the Scottish independence referendum to retain Scotland within the United Kingdom.

Ghanaian Independence Anniversary speeches have largely been overlooked in the field of Functional Linguistics, with minimal research dedicated to their linguistic analysis. As a result, understanding how language is used within the transitivity framework to convey targeted messages in these speeches has been challenging. This study addresses this significant gap in linguistic research and lays the groundwork for future studies in this area.

This paper aims to analyse the 2012 Independence Anniversary speech by John Evans Atta Mills to uncover the meanings embedded in the linguistic elements of the speech. The study explores the transitivity process types utilised in the structuring of information.

Literature Review

Review of empirical studies that used the transitivity model

Recent discourse analytic research on Ghanaian political speeches have looked at a variety of speeches, such as inaugural and victory speeches (Boakye, 2012; Anderson, 2014; Appiah, 2015), state of the nation addresses (Ewusi-Mensah, 2014), and farewell speeches (Adjei & Ewusi-Mensah, 2016). However, Independence Day speeches by Ghanaian presidents have received little attention due to transitivity analyses of Ghanaian political speeches, which have mostly concentrated on state of the country addresses, triumph, inaugural, and goodbye speeches.

Sing the ideational metafunction found in Halliday's (1994) *Systemic Functional Grammar*, Anderson (2014) uses the transitivity model to analyse a few of President John Evans Atta Mills' political speeches.

Anderson applies the transitivity framework to four speeches to demonstrate how process types are utilised to establish President Mills as deserving of the title "Man of Peace." The speeches analysed were delivered at an inaugural ceremony, a victory celebration, and during New Year festivities. Nevertheless, the analysis did not include President Mills's Independence Anniversary remarks.

By examining a speech given by President John Evans Atta Mills on the occasion of his Independence Day, this study seeks to fill the data representation gap and either support or refute Anderson's (2014) conclusions.

Adjei, Ewusi-Mensah, and Okoh (2015) employed the transitivity model to examine the wording of President Mills' first State of the Nation Address, building on Anderson's 2014 work. Their findings revealed that material processes were predominant, accounting for 59.14% of the speech, while mental processes were significantly less frequent, at 14.37% below material processes. The extensive use of material processes in the speech was employed to portray President Mills' governance as proactive and developmental.

In a parallel study, Adjei and Ewusi-Mensah (2016) analysed the language in President J. A. Kufuor's Farewell Address to Parliament using Halliday's transitivity theory. They looked at each clause in the address using the Content Analysis Design. According to the study, material processes were the most commonly used of the six transitivity process types, whilst existential processes were the least used.

The predominant use of material processes highlights Kufuor's focus on recounting concrete achievements from his eight-year tenure and reflecting on his government's activities and current developments. Additionally, he made recommendations to the incoming administration to ensure the continuation of his administration's projects. Based on the study's findings, the three main process types that make up 90% of the speech are material, relational, and mental processes.

In other African countries, such as Nigeria, Independence Day speeches have garnered some linguistic research attention. Adekunle and Adebayo (2017), for instance, examined the instances of linguistic politeness in eight chosen speeches given by Nigerian heads of state between 1960 and 2011 on the occasion of their country's independence.

The most pertinent work for this study is Mwinwelle (2017), who used the framework of linguistic and stylistic categories created by Leech and Short (2007) to analyse speeches given by Ghanaian President John Mahama on the country's Independence Anniversary. According to Mwinwelle (2017), Mahama uses lexico-stylistic resources to draw attention to the problems facing the country and offer ways to solve them.

This study will differ from previous research by focusing on President John Evans Atta Mills' 2012 Independence Anniversary speech, during his presidency from 2009 to 2012, and applying the transitivity framework developed by Halliday and Matthiessen (2014). The analysis aims to confirm or challenge the findings of earlier related studies by examining this specific speech.

Theoretical Framework

This section outlines the theoretical framework guiding the study. It begins with an overview of Systemic Functional Theory, the overarching theory employed, and then delves into the system of transitivity, the specific lexico-grammatical framework utilised for data analysis.

Systemic functional linguistics

The Systemic Functional Linguistic (SFL) framework, created by M.A.K. Halliday (Halliday, 1961, 1966, 2008; Matthiessen, 2007; Martin, 2016; Mwinlaaru & Xuan, 2016), serves as the foundation for this investigation. Two aspects of Systemic Functional Linguistics (SFL) are the subject of the study: "system networks" and the idea of language's metafunctions (Halliday, 1985, 2006; Halliday & Matthiessen, 2004; Halliday & Matthiessen, 2014). SFL is both functional and systemic.

The term "systemic" describes the variety of linguistic options that users have at their disposal, whereby these options are connected in their meaning.

The entire linguistic system influences the choice of certain linguistic traits (Halliday et al., 2014; Thompson, 2013). This system is thought to be the

process by which language acquires meaning. This framework is notable for its view that "language is a resource for making meaning," according to which "meaning resides in systemic patterns of choice" (Halliday and Matthiessen, 2004:23).

Viewing language as a resource means that speakers can choose from a variety of linguistic options based on their communicative goals. In other words, when speaking, individuals select particular words to fulfil specific functions.

Martin (2016) explains why Systemic Functional Linguistics (SFL) is considered functional, highlighting the distinction between word function and word class. This distinction allows us to understand the various functions performed by different word classes and illustrates how language serves multiple functions. The primary purposes of language are divided into three categories by Halliday and his associates (Halliday & Hassan, 1976; Halliday, 1985; Halliday & Matthiessen, 2004; Halliday & Matthiessen, 2014): ideational, interpersonal, and textual.

These are collectively known as the metafunctions of language. The ideational function refers to how clauses express our beliefs, thoughts, and ideas about the external world and our internal mental states and is realised through the transitivity system. The interpersonal function is conveyed through mood and modality. The textual function pertains to how oral or written discourse relates to its context and situation and is realised through theme and information focus.

The transitivity system serves as the primary means of understanding the ideational function, which is the subject of this study. The key analytical framework is the idea of transitivity, which is covered below. The ideational function encompasses three sub-strands: register, modality, and transitivity.

Concept of transitivity

Systemic Functional Linguistics (SFL) is the primary theoretical framework guiding this study, with transitivity serving as the analytical tool for examining President John Evans Atta Mills' 2012 Independence Anniversary speech. The transitivity framework is a grammatical approach that explores how speakers construct their experiences through their grammatical choices from a range of linguistic options. It reveals how the meaning of experiences and events is conveyed through clauses (Halliday & Matthiessen, 2014). Factors

influencing linguistic choices can include the speaker's internal and external experiences, the subject matter, and the nature of the audience (Awuku, 2018). Unlike other structurally oriented grammatical theories, SFL emphasises how language is employed to create meaning (Halliday & Matthiessen, 2004).

The choice of the transitivity framework is based on its ability to express experiences and events through clauses, which encode people's ideas, thoughts, and experiences. According to Mwinwelle, Duah, and Mensah (2021:42), "the framework consists of various patterns known as transitivity patterns or process types, which represent different aspects of human experiences." These patterns or process types reflect the grammatical and semantic configurations used to convey various forms of human experiences and thoughts within clauses. Each clause typically includes three primary elements: the process, participant, and circumstance. The process, conveyed by the verb, represents the central idea of the clause and is expressed over time (Downing & Locke, 2006). The participant is involved in the clausal events and can be either animate or inanimate, represented by a nominal group (Halliday & Matthiessen, 2004, 2014). The circumstance, usually represented by the adjunct, provides additional background information relevant to the transitivity system.

Process types

The transitivity system is a lexico-grammatical framework that demonstrates how language conveys experiences, according to Halliday and Matthiessen (2004, 2014). They contend that our understanding of these experiences consists of a series of occurrences or "goings-on," which are expressed by the grammar of the clause.

The six processes in English are material, mental, relational, behavioural, verbal, and existential, according to Halliday (1994, 2014). Material, mental, and relational processes are the most important of these, according to Halliday and Matthiessen (2004, 2014). They observe that compared to mental processes, material and relational processes are employed more frequently. Verbal processes, which involve language acts like saying and meaning, straddle the line between mental and relational processes because of human consciousness, whereas behavioural activities fall between material and mental processes. Between relational and material processes, existential

processes deal with events that are simply defined as "being," "existing," or "happening" (Halliday & Matthiessen, 2014).

Material process

The material process involves actions, events, and changes (Halliday & Matthiessen, 2004; Eggins, 2004). A material clause denotes a shift in the course of events, usually brought about by an energy input (Halliday & Matthiessen, 2014). It is the broadest and most varied category within the transitivity framework, characterised by action-oriented verbs that describe physical actions or events (Thompson, 2014). This process depicts situations where one entity performs an action that either impacts another entity or does not affect any entity at all. The fundamental principle of the material process is that it involves an action, regardless of whether that action is directed towards another entity. As the most dominant process type, material processes include several subtypes that can be further categorised into different groups. Halliday and Matthiessen (2004) and Thompson (2013) explain that all material processes involve an actor. While the actor may not always be explicitly mentioned in the clause, it is implied. Material processes can be classified into various subcategories, such as creative and transformational. These processes can either bring entities into existence—by creating something that did not previously exist—or transform existing entities from one state to another. Halliday and Matthiessen (2004, 2014) refer to these as creative and transformative processes, respectively. In material processes, two key participants are the actor and the goal. The actor is the entity performing the action, while the goal is the entity affected by the action. In other words, the actor carries out the action, and the goal is the target or recipient of the action. The following clauses illustrate examples of transformational and creative material processes:

This year, we (Actor) have reformatted the parade (Goal) (Transformational).

We (Actor) build a Better Ghana (Goal) in which the dreams of our children can become a reality (Creative).

Halliday and Matthiessen (2004, 2014) identify additional participants commonly associated with material processes, including the Initiator, Scope, Recipient, Client, and Attribute. The Initiator often appears alongside the Actor in situations where the action is influenced by an external participant

who, although not directly involved in the process as the Actor, still exerts agency over it. Like the Goal, the Scope is a participant who is not immediately impacted by the activity. The Recipient is the participant that receives something—whether concrete or abstract—from the Actor. The Client, on the other hand, is the participant who receives a service indicated by the process.

Halliday and Matthiessen (2014) explain that transitivity highlights the distinction between active (operative) and passive (receptive) constructions and their impact on participants. They suggest that in an active (operative) clause with a single participant, that participant is the Actor. In contrast, in a passive (receptive) construction, the Goal becomes the subject of the sentence, as demonstrated in the following example.

Active: The teacher (Actor) beat (Material Process) the student (Goal)

Passive: The student (Goal) was beaten (Material Process) by the teacher (Actor)

Halliday also identifies additional participants associated with material processes, including the range/scope, initiator, beneficiary (comprising the client and recipient), and attribute. The terms "range" and "scope" are often used interchangeably, as noted by Bloor and Bloor (2004), who suggest that scope can be considered a subcategory of range. According to Awuku (2018), the range or scope in a material process refers to the nominal group that follows the verb and enhances the meaning conveyed by the verb. The key difference between the range and the goal is that while the goal represents an entity affected by the action of the actor, the range is not an entity but instead extends or clarifies the meaning of the verb within the material process. Additionally, when the goal is not impacted by any action, it may be classified as range or scope. Examples illustrating the use of range are provided below.

John (Actor) bought (Material Process) a car (Goal).

President Akufo-Addo (Actor) sang (Material Process) a song (Range/scope).

She (Actor) played (Material Process) chess (Range/scope) yesterday (Circumstance)

"Recipient" and "client" are phrases used to describe participants who get something from the process, such as products or services. The client is the person to whom services are rendered, whereas the recipient is the one who gains anything from or receives things. In order to distinguish between recipient and client, Thompson (2014) points out that various prepositions are employed: "recipient" is usually linked with the preposition "to," whereas "client" is associated with "for." The following is an illustration of a material process involving these individuals.

The teacher (Actor) gave (Material Process) a book (Goal) to the student (Beneficiary: Recipient)

Mental process

As the name implies, the mental process pertains to the workings of the mind and is concerned with experiences within a person's inner world. It involves the processes of sensing, feeling, thinking, and perceiving the events that occur internally. Thoughts, observations, and emotions serve as channels through which a particular phenomenon is sensed in the mental process. Downing and Locke (2006) emphasise that not all experiences are outwardly expressed; some occur internally without any visible action. In essence, mental processes encompass the experiences that unfold within the mind.

One does not need direct access to the human mind to uncover a speaker's thoughts, the choice of verbs in speech acts as a key indicator of mental processes within the transitivity system. Like the material process, the mental process is divided into subcategories. Verbs like "love," "admire," and "like" indicate emotional processes; verbs like "know," "understand," "believe," and "forget" reflect cognition; verbs like "feel," "hear," "notice," and "taste" reflect perception; and verbs like "hope," "want," "wish," and "desire" indicate desideration (Downing & Locke, 2006; Halliday & Matthiessen, 2006; Thompson, 2013).

The mental process involves two key participants: the senser, who experiences the sensation, and the phenomenon, which is the entity being sensed. Examples of mental process clauses include:

The boy (Senser) knows (Mental Process: Cognition) the truth (Phenomenon).

I (Senser) heard (Mental Process: Perception) the news (Phenomenon) this morning.

Women (Senser) hate (Mental Process: Emotive) snakes (Phenomenon).

The man (Senser) desires (Mental Process: Desideration) a wife (Phenomenon).

Relational process

As the name suggests, the relational process is concerned with the connections between or among entities. According to Halliday (1994), this process creates a link between two different entities without suggesting that one has a direct impact on the other. It captures various ways in which states of being or possession are expressed through clauses. Unlike material and mental processes, the relational process is unique in its structure. The carrier, the clause's subject or topic, and the attribute, a descriptive element about the carrier that is frequently an adjective or a noun, are the two primary players in relational clauses, according to Halliday and Matthiessen (2014).

Relational processes are categorised into two types: attributive and identifying. The attributive process assigns a quality or characteristic to an entity, while the identifying process reveals or determines an identity (Gerot & Wignell, 1994; Zhao & Yi Zhang, 2017). In identifying processes, the "value" represents a more generalised entity, while the "token" embodies a more specific instance or embodiment of that entity (Thompson, 2014). Examples illustrating these processes are provided below.

The car (Carrier) is (Relational Process: Attributive) very expensive (Attribute).

The box (Token) is made up of (Relational Process: Identifying) paper (Value).

Awuku (2018) points out that a key distinguishing feature between identifying and attributive relational clauses is the principle of reversibility. In identifying relational clauses, this principle allows the clause to be reversed, whereas in attributive clauses, this reversibility is not possible. The examples provided below demonstrate how reversibility differentiates identifying relational clauses from attributive ones.

His job (Token) is (Relational Process: identifying) his utmost priority (Value)

or

His utmost priority (Value) is (Relational Process: identifying) his job (Token).

John (Carrier) is (Relational Process: attributive) strong (Attribute)

Verbal Process

In the transitivity system, the verbal process is a minor kind that sits between the mental and material processes. It represents the expression of thoughts through speech, effectively manifesting what occurs in the mind as verbal actions. Verbal processes typically convey acts of saying. Depending on the type of text being analysed, verbal processes can be either major or minor. For instance, in Awuku's (2018) study on the transitivity analysis of the Sermon on the Mount, verbal processes emerged as one of the dominant types, contrasting with findings by Mushtaq et al. (2020), who regarded verbal processes as minor. Three people are involved in the verbal process: the verbiage (the substance or what is said in the clause), the sayer (the one who speaks), and the receiver (the one to whom the speech is addressed). The examples below illustrate these elements within the verbal process.

The boy (Sayer) thanked (Verbal Process) him (Receiver)

The pastor (Sayer) announced (Verbal Process) to the church (Receiver) the amount raised from the harvest (Verbiage).

Behavioural process

Among the six process types, the behavioural process is considered one of the minor types. According to Okoh, Adjei, and Ewusi-Mensah (2015), behavioural processes reflect the outward expressions of inner states, essentially acting out processes of consciousness and physiological conditions. This process type reveals a person's awareness and physical state through observable human behaviours. Positioned between mental and material processes, behavioural processes are typically represented by verbs such as *cough*, *sneeze*, *yawn*, *blink*, *laugh*, and *sigh*. As noted by Downing and Locke (2006), these processes are often involuntary, with the verbs generally being intransitive. The behavioural process involves two key participants: the *beholder*, who performs the action, and the *range*, also known as the behaviour, which is the action being performed. Expanding on the concept, Eggins (2004) compares the behaviour in the behavioural process to the range in the material process, noting that there may also be another participant, known as the

phenomenon, which is distinct from the restatement of the process. Examples of the behavioural process and its participants are shown below.

The woman (Behaver) kept crying (Behavioural Process)

Paul (Behaver) gave (Behavioural Process) a coy smile (Behaviour)

The man (Behaver) looked at (Behavioural Process) the thief (Phenomenon)

Existential Process

The existential process is the last kind of process in the transitivity framework. An entity's existence and position are indicated by this procedure (Downing & Locke, 2004). The existential process, according to Hancock (2005:240), is a statement that asserts the existence of an entity without offering any details. The verb "BE" is used to describe the relational process (is, am, are, was, were), and the verbs "go," "come," "toil," "exist," "remain," "arise," "occur," "happen," and "take place" for the material process.

"There" or the verb "exist" are commonly used to start the existential process (Halliday, 1994). There is only one required participant, referred to as the existent, which is the thing or occurrence that is being claimed to exist.

A variety of phenomena, such as things, people, objects, institutions, abstractions, acts, or events, might be considered to be existent. The term "there" serves as the subject in the existential process, but it has no experiential meaning. Since there is only one participant, its main function is to fulfil the subject requirement without requiring or allowing for a second participant. The circumstance, which usually indicates the location of the existing, is an optional participant that occasionally shows up in the existential process.

There (Subject) was (Existential Process) confusion (Existent).

There (Subject) are (Existential Process) students (Existent) in the hostel (Circumstance).

Methods

This paper employs a qualitative research approach to examine the patterns of a linguistic phenomenon and draw conclusions based on its analytical procedures. While primarily qualitative, the study incorporates descriptive statistics to enhance data analysis, including frequency tables and percentages. These tools, along with bar graphs, facilitate a detailed description and analysis of the process types.

This paper utilises content analysis as its research approach. Hsieh and Shannon (2005) define content analysis as a research technique that entails the subjective interpretation of textual data via a methodical coding and theme-finding procedure.

Purposive sampling was employed to select the 2012 Independence Day anniversary speech of John Evans Atta Mills. This speech was chosen because it was the last Independence Day address delivered by John Evans Atta Mills before his passing in July 2012. The paper also applied Halliday and Matthiessen's (2004; 2014) transitivity analysis method, which was instrumental in clearly identifying the processes and their discourse effects. This approach helped to determine the roles played by participants, identify the affected entities, analyse the types of processes used, and understand the circumstances that contextualised the speaker's thoughts and experiences in the address.

A consensual coding strategy was utilised, meticulously categorising the clauses into their respective process types. The sorting and identification of these process types were conducted using Microsoft Excel to detect any variations within each identified process type. Each specific process type, along with its participants, was identified and labelled. Following this, the labelled clauses were compared to synchronise any variations, resulting in the final categorisation of clauses under the various process types used for analysis. Frequency counts and percentages were then employed to identify the dominant transitivity patterns in the speeches, with the frequency distribution of process types serving as evidence to support the study's findings.

Analysis and Discussion

First, the most common process types are identified, and then the communication functions embedded in these process types in John Evans Atta Mills' 2012 Independence Day anniversary address are analysed and discussed. The transitivity model was the main tool used in the study to analyse the address. The process types, frequencies, and percentages that were employed in John Evans Atta Mills' 2012 Independence Day address are shown in the table below.

Table 1: Distribution of process types in the speech

Process Type	Frequency	Percentage %
Material process	70	63.6
Relational Process	23	20.9
Mental Process	11	10
Verbal process	6	5.5
Behavioural Process	0	0
Existential Process	0	0
Total	110	100%

According to the preceding table, John Evans Atta Mills' 2012 Independence Day Anniversary address primarily discusses material process types. Out of the 110 process types found in the speech, material processes were the most common, appearing in 70 cases or 63.6% of all clauses. This suggests that over 50% of the sentences under analysis are material processes. With 23 instances, or 20.9%, the relational process type is the second most common. The mental process, which makes up 10% and appears 11 times, comes next. Six verbal processes, or 5.5%, take place. There were no occurrences of either the existential or behavioural process types.

Analysis of material processes

The predominance of material clauses in the speech suggests that John Evans Atta Mills primarily frames and interprets the world through actions, thoughts, and experiences related to Ghana's past struggles, achievements, and the current state of the nation (Zhao and Zhang, 2017). He strategically employs material clauses to serve multiple purposes. In the introductory sections of the speech, Mills uses these clauses to establish the speech's context, explain the purpose of the celebration, recount the past struggles and achievements of the nation's founding fathers and other dedicated forefathers, and outline the current state of the nation, including potential challenges it may face in the near future. The functional uses of material clauses in the speech are detailed and discussed below.

Material processes used to construe the context of the speech as Independence Day anniversary speech.

John Evans Atta Mills begins by using material processes to establish the tone for his speech. He carefully selects the verbs "passed," "rest," and "celebrate"

in clauses 1, 2 and 3, among others, to frame the context of the speech as a celebration of independence.

John Evans Atta Mills employs the material process "passed away" in clauses 1 and 2 to refer to a student named Goni, who tragically lost her life during rehearsals for the 2012 Independence Anniversary. He further uses the material process "celebrate" in clause 3 to acknowledge the contributions of parade commanders, particularly Commander Colonel John Asabre, in the anniversary celebration. The following clauses illustrate these points:

1. *who **passed** away. (JEAM 2012)*
2. *May her soul **rest** in perfect peace and my heartfelt condolences to the bereaved family and entire staff and students of Ho Fiave Seventh Day Adventist School. (JEAM 2012)*
3. *to **celebrate** this day. (JEAM 2012)*

Material processes used to appreciate the founding fathers and leaders of the nation from independence to its current state

To honour the efforts and contributions of the founding fathers in achieving the country's independence, John Evans Atta Mills uses material processes such as "fight," "bring," and "salute" to express gratitude to all who played a role in securing independence.

4. *Ghana under Kwame Nkrumah made the **fight** for independence of other African countries, its prime occupation. (JEAM 2012)*
5. *who **bring** honour and joy to Africa's image in their daily endeavours (JEAM 2012)*
6. *I also **salute** the student; teacher; labourer; market woman; driver; and every Ghanaian past and present (JEAM 2012)*

The material processes *fight* and *bring* are used in clauses 4 and 5 above are used to denote the honour and prestige that the founding fathers brought to Ghana and Africa as a whole. The forefathers who helped in Ghana's independence also played a major role in helping some Africa countries in gaining their independence as seen in clause 5 above.

Apart from the founding fathers who contributed towards attainment of the nation's independence, Atta Mills through this material process, *salute* in clause 6 above, renders an appreciation to the entire citizenry such as students,

teachers, labourers, drivers and market men and women for their roles towards the growth and development of the country.

Material processes used to construe the achievements of the country

To highlight the nation's achievements, Atta Mills uses the material processes "sustain," "have toiled," and "have made" in clauses 7, 8, and 9. These processes illustrate the nation's accomplishments, particularly in maintaining peace and stability and upholding Ghanaian values since gaining independence.

7. *we **have made** some significant gains (JEAM 2012)*
8. *but to “**sustain** the peace” (JEAM 2012)*
9. *what we **have toiled to build** our Ghanaian values (JEAM 2012)*

Mills through the material process ‘*have toiled to build*’ in clause 9 points to Ghanaians the achievement they have made in the of Ghanaian values. This is seen in clause 9, *what we have toiled to build our Ghanaian values (JEAM 2012)*. He continues with material process *sustain* in clause, 8 to remind Ghanaians and other Africans of how they have toiled to build and sustain the peace the country is enjoying. This is seen in clause, 8 but to “*sustain the peace*” (JEAM 2012). He further tells Ghanaians through the material process, *have made* in clause 7, the various gains the country has made in various departments of the country. This is seen in clause 7. *we **have made** some significant gains (JEAM 2012)*.

Analysis of relational processes

Statistically, relational processes were the second most common process type, occurring 23 times and representing 20.9% of the total. Relational processes primarily depict the relationship between an object and its qualities or features, as well as between an object and its identity or value. One category of relational process, known as the attributive relational process, highlights the attributes or qualities associated with an object. Another category, called the identifying relational process, involves defining one entity in terms of another.

The analysis of relational clauses focuses on two main types: attributive and identifying relational clauses. According to Akabuike (2020:223), "Attributive relational processes describe an entity by assigning attributes to it, while identifying processes are used to specify a person." Gerot and Wignell (1994) and Zhao and Yi Zhang (2017) note that identifying relational clauses directly

identify an entity, whether human or non-human. In attributive relational processes, the participant roles are "carrier" and "attribute," while in identifying relational processes, the roles are "identified" and "identifier" or "token" and "value." Generally, John Evans Atta Mills employs attributive relational clauses to describe various events and entities, whereas identifying relational processes are used to detail numerous facts about both animate and inanimate entities. The table below provides an analysis of the attributive and identifying relational clauses in the 2012 Independence Day Anniversary speech.

Table 2: Types of relational process

Relational Process	Number of occurrences	Percentage %
Attributive Relational Process	13	56.5
Identifying Relational Process	10	43.5
Total number of relational processes	23	100

From Table 2 above, out of 23 relational clauses, attributive relational clauses occurred with a frequency of 13 representing 56.5%, while identifying relational clauses had a frequency of 10 representing 43.5%. The sections that follow presents a detailed discussion of the use of attributive and identifying relational clauses in the speech.

Attributive relational clauses

Attributive relational clauses appeared 13 times, accounting for 56.5% of all relational clauses, making them the predominant relational category. This indicates that the speech is highly descriptive, similar to Awuku's (2018) study of the Sermon on the Mount using Halliday's transitivity model. The attributive relational processes highlight the roles played by forefathers and others during the struggle for independence. Below are examples of attributive relational clauses found in the speech. The most frequent transitivity pattern identified is Career + Process + Attribute.

Clauses 10 and 11 are used to describe the features and roles of leadership from the time that the country gained independence to the current state. In clause 11, the attributive verb, "remain" is used to describe how committed leadership has been from the time of independence to the present. In clause

10, the possessive attributive relational process “have” is used to emphasise the good roles leadership is performing which the country cannot afford to lose. The following clauses support the above discussion.

10. *As a nation, we **have** no option (JEAM 2012).*

11. *and with the right leadership that continues to **remain** committed (JEAM 2012)*

Identifying relational clauses

As noted in Table 2, identifying relational clauses appeared 10 times, constituting 43.5% of all relational clauses. These clauses typically followed the standard token-value mapping. This finding aligns with Halliday and Matthiessen’s (2014:284) observation that if token-value mapping predominates a text, it often indicates a scientific, commercial, political, or bureaucratic discourse. The token-value ordering is useful for examining ideological categories based on the experiential value in identifying clauses. Since this study focuses on political discourse, specifically Independence Day speeches, the token-value order is employed to allow President John Evans Atta Mills to highlight key facts about Ghana’s history of independence and its relevance to the current state of the nation. It also serves to identify the roles played by the forefathers in achieving independence. This approach helps the President to emphasise Ghana’s achievements and challenges, addressing both the Ghanaian people and the wider African continent. Through these identifying relational clauses, John Evans Atta Mills underscores that Ghana was the first African country to gain independence, referring to it as the “oasis of peace” in Africa. The most common transitivity pattern observed is Token + Process + Value (Identifier). The following clauses are examples of identifying clauses used in the speech.

Attah Mills uses identifying relational clause 12 to identify important facts about the history of Ghana’s independence and its relevance to the current state of the country. This is done by identifying the country, Ghana from the time it attained its independence by mentioning how long since the country achieved independence. This is evident in the except from the speech below.

12. *Fellow countrymen and women, brothers and sisters, sons and daughters, Ghana our beloved country **is** 55 today, (JEAM 2012)*

Analyses of mental processes

In line with Halliday and Matthiessen's (2014) assertion that the mental process is a major process type, this study found it to be the third most frequently used process. There were 11 instances of mental processes, representing 10% of the entire speech. The analysis of mental processes is categorised into four types: cognition, realised in verbs such as "know," "understand," "believe," and "forget"; desideration, reflected in verbs such as "hope," "want," and "wish"; perception, indicated by verbs like "feel," "hear," "notice," and "taste"; and emotion, evidenced by verbs such as "love," "admire," and "like" (Downing & Locke, 2006; Thompson, 2013; Anafo, 2017; Mwinwelle, Amoakohene & Agyekum, 2020). Among these, cognition processes are most prominently used to convey the remembrance of Ghana's independence and the related events. The table below shows the distribution of the sub-categories of mental processes.

Table 3: Categories of mental process

Process type	Frequency	Percentage (%)
Cognition	6	54.5
Desideration	3	27.3
Perception	2	18.2
Emotional	0	0
Total	11	100

Based on Table 3 above, mental process of cognition occurred with a frequency of 6 representing 54.5%, followed by mental process of desideration with a frequency of 3 representing 27.3%, mental process of perception occurred with a frequency of 2 representing 18.2%. Finally, mental process of emotion had zero frequency. The mental process clauses identified in the speeches construed President John Evans Atta Mills experience of the world around them and this projects mental alertness. The dominance of mental process of cognition suggests that the John Evans Atta Mills wanted to remind Ghanaians about the incidents and struggles surrounding attainment of independence.

Mental process of cognition

In clause 13 the speaker, J. E.A Mills uses mental process *will be remembered* to draw the minds of Ghanaians to the lady who lost her life in Ho whilst

rehearsing in preparation for the 2012 Independence Day celebrations. The clause below supports the above discussion:

13. *She will be **remembered** for her patriotic zeal to serve her nation. (JEAM 2012)*

Mental processes of desideration

Desiderative mental process is the second highest of the subcategory of the mental processes. It projects wishes or brings wishes into existence.

In clauses 14 and 15 mental processes of desideration *are enjoying* is employed by J. E.A Mills to express how Ghanaians are feelings towards attainment of the independence and for the celebration as a whole. The following mental clauses below support the above discussion.

14. *we **are enjoying** (JEAM 2012)*
 15. *we **are enjoying** for granted (JEAM 2012)*

Mental process of perception

Most of the mental processes of perception appealed to the sense of sight. This indicates that President J. E.A Mills wanted the people of Ghana to see how colourful events are being carried out in the celebration of the anniversary.

The mental process of perception *watching* is used in clause 16 with the phenomenon participant *our youth* to interpret how J.E.A. Mills puts some kind of premium on the youth to rally behind him in the development of the nation. This is seen in the clause below:

16. ***watching** our youth (JEAM 2012)*

Analysis of verbal processes

The verbal process is the process by which ideas in the mind are expressed or made visible through speaking. Thus, the process of saying is represented by verbal processes. Verbal processes happened with a frequency of 6, or 5.5%, according to the data.

In clause 17, verbal process *thank* is used to appreciate the audience for paying attention and listening to the speeches that were delivered. This is seen in clause 18 below. In addition, the verbal process *thank* is used in clause 18, to show gratitude to the almighty God for granting travelling mercies to those who came from near and far to attend the occasion. The following clauses support the above discussions:

17. *I **thank** you for your kind attention. (JEAM 2012).*
18. *18 we **thank** God Almighty for bringing us this far. (JEAM 2012)*

Findings and Conclusion

The analysis shows that John Evans Atta Mills uses material process types more frequently than any other process type in the 2012 Independence Anniversary Speech. This high frequency of material processes indicates that material clauses are predominant in Ghanaian political speeches, emphasising actions and events more than other domains of experience (Anderson, 2014; Adjei and Ewusi-Mensah, 2016; Adjei, Ewusi-Mensah, and Okoh, 2015).

Additionally, relational processes are the second most frequently used process type in the speech. These processes serve two main communicative functions: attributive and identifying. Attributive clauses are employed to assign various attributes to the celebration, describing the events, entities, and context presented in the speech. They also specify the number of years since the nation gained independence. Identifying relational processes, on the other hand, emphasise significant facts about Ghana's independence and its relevance to the present state of the country.

Third, mental processes in the speech are used to emphasise to Ghanaians the significance of remembering the events surrounding Ghana's attainment of independence. These processes also highlight Ghana's prominent role as a pioneer of independence in Sub-Saharan Africa, noting its distinction as one of the few countries to achieve early independence on the continent. This finding supports Mensah's (2014) assertion that on March 6, 1957, when Nkrumah declared Ghana's independence, there were only eight independent African nations. Mensah (2014) confirms that Ghana was the ninth African country to gain independence and the first in the West African sub-region.

Finally, verbal processes are used to convey collective gratitude and appreciation to the forefathers who worked tirelessly to secure the country's independence, as well as to special guests, the military, school children, and all Ghanaians who participated in the celebration.

In conclusion, the transitivity analysis of the process types used in President John Evans Atta Mills' 2012 Independence Day speech offers valuable insights into how language reflects and shapes his ideological stance, communicative intentions, and experiences. By examining the distribution of

material, relational, mental, and other process types, we can understand how President Mills constructs and interprets the world, builds national identity, motivates collective action, and emphasises specific values and achievements. The dominance of material processes, for example, highlights a focus on actions and accomplishments, while relational processes emphasise the importance of unity and shared identity in celebrating the anniversary. Overall, this transitivity analysis not only reveals the linguistic strategies employed but also demonstrates how the speech aims to resonate with and inspire Ghanaians, reinforcing the significance of the independence anniversary in the national consciousness.

Implication of the Study

The findings of this study on the transitivity analysis of process types in the 2012 Independence Day Anniversary Speech of John Evans Atta Mills have significant implications for discourse analysis, political communication, and linguistic studies.

1. The study highlights how language choices in political speeches shape meaning, influence public perception, and convey ideological positions. This enhances our understanding of how leaders use language to assert power, unity, and national identity.
2. By applying transitivity analysis, this research provides a systematic approach to examining how political figures construct reality through language. It reinforces the role of linguistic analysis in uncovering implicit messages in political discourse.
3. The study's insights can help speechwriters and political communicators craft more effective and persuasive speeches by understanding how different process types influence audience interpretation and engagement.
4. Educators and students in linguistics, communication studies, and political science can use this research as a reference for analysing speech patterns, fostering critical thinking and discourse analysis skills.
5. The study lays a foundation for future research comparing speeches from different political figures, time periods, and contexts, further exploring how linguistic choices evolve and reflect leadership styles.

Recommendation

Based on the findings of this study on transitivity analysis in the 2012 Independence Day Anniversary Speech of John Evans Atta Mills, the following recommendations are proposed:

1. Future research should apply transitivity analysis to speeches from other Ghanaian and African leaders to compare how linguistic choices reflect political ideologies, leadership styles, and national priorities.
2. Linguists and discourse analysts should incorporate transitivity analysis into political communication studies to uncover deeper meanings in political rhetoric and its impact on public perception.
3. Political speechwriters and communicators should consider transitivity analysis when crafting speeches to ensure clarity, persuasive effectiveness, and audience engagement.
4. Educators should integrate transitivity analysis into language and discourse studies to enhance students' critical thinking and analytical skills in understanding political and public speeches.
5. Scholars from linguistics, political science, and media studies should collaborate in examining how language use in political speeches influences governance, media framing, and public discourse.

Ethical Statement

This study involved non-human participants. The primary data for this study was text; that is, 2012 Independence Day Anniversary speech of the Former President of Ghana, Prof. John Evans Atta Mills. The speeches were downloaded from www.gov.com.

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Conflict of Interest

The authors attest that they have no competing interests with regard to this article's publication.

Authorship Contribution Statement

Adukpo: Research idea, formulating research questions, drafting manuscript. Gaaku: Research design, data collection, and analysis, formatting, citations, and compliance with ethical research standards. Wumbei: Review of relevant literature, developed the theoretical framework and proofreading.

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Effects of Triability, Relative Advantage, Compatibility, Complexity, and Observability on the Adoption and Use of ICTs in Accra Technical University Library

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Abstract

This study investigates how Rogers' diffusion of innovation features like relative advantage, compatibility, complexity, triability, and observability affect information technologies acceptance and application at the Accra Technical University Library in Ghana. This study will eventually culminate in the development of tailor-made strategies for ICT adoption and use at Accra technical university library in Ghana. The Diffusion of Innovation Theory (DIO) was the theoretical framework that guided the study. The necessary data for this qualitative research was collected using a case study research design with the purposive sampling method. Twenty-two (22) members of staff from the library were interviewed, in addition to the observation of the various sections of the library to collect the pertinent data. The findings revealed that the library has acquired ICT technologies and infrastructure, ICT-based software, ICT-based electronic resources, and ICT-based library services. However, their acceptance and application were greatly influenced by the ICTs attributes as proposed by Rogers.

The paper submits that the library management should focus on the introduction of user-friendly ICT tools to promote acceptance since the speed of adoption and use strongly relates to an innovation's apparent simplicity. The library management should also make sure the ICT tools earmarked for adoption are well-suited with the current systems and triable.

Keywords: *Innovation, Trialability, Complexity, Relative Advantage, Observability, Diffusion*

Introduction

Generally, the twenty-first has been acknowledged as a time driven by the transformation in information, due to the significant advancement in information and communication technologies (ICTs). This effectively modified teaching and learning processes in schools, colleges and universities (Mogwe & Balotlegi, 2020). This has equally enhanced information quality across the different spheres and fields of study (Adebayo, Ahmed, & Adeniran, 2018). This has consequently made the use of ICTs in libraries a constant occurrence, having significant impact on their operations, and modifying nearly all their functions.

These have enabled the creation of inventive service for extensive information exchange due to the enhanced flexibility and customisation of services the use of ICT offers (Adebayo, Ahmed, & Adeniranm 2018).

Anafo, Akpah, and Ofori (2020) posit that the application of innovations such as computers, scanners, RFID, photocopiers, audio-video technology, and Internet service has substantially improved information delivery and accelerated the growth of individuals and nations in Africa. Thus, the critical role of ICTs deployment within libraries of higher institutions of learning in the overall value of education and training has been established. This is particularly evident as more 3opportunities for educational expansion are created in distance and open learning, paving the way for unceasing scholarship (Adebayo, Ahmed, & Adeniran, 2018; Gulavani, 2021). Anafo, Akpah, and Ofori (2020) Anafo, Akpah, and Ofori (2020) argue that before the arrival and incorporation of ICTs into library services, libraries worked in a difficult and unproductive manner. This resulted from individual, unconnected manual completion of library chores carried out without integration. This happened because of the manual execution of library tasks and disconnected activities. Information materials were also kept on shelves, aggravating

problems with inadequate space (Plockey & Pwadura, 2018). Nevertheless, Abubakar (2022) contends that integrating and efficiently using ICT is essential to attending to the widening disproportions in educational opportunities. Ghana has the potential to enhance the training and delivery of education across all levels through the integration of ICT, thereby facilitating significant transformations in the educational landscape. Consequently, ICT use is of great relevance in reaching both personal and organizational goals, specifically in higher institutions of learning. This is mainly so because of its capacity to permit concurrent access for several users, therefore closing the global information gap and creating a more favourable learning environment for students (Adebayo, Ahmed, & Adeniran, 2018).

According to Acheampong (2019), Ghana's ICT development has reached remarkable feats, just as many other African countries. Nonetheless, Acheampong (2019) accepts the limited availability of technology-driven services within academic libraries in Ghana. It has largely focused on traditional library automation (Anafo, Akpah, & Ofori 2019), where manual processes, such as document delivery, are replaced with computerised systems. This reluctance may primarily be due to the inherent hitches that underdeveloped nations encounter in accepting and deploying new innovations (Acheampong, 2019).

A plethora of research studies have emphasised the critical role of ICT resources for the enhancement of academic libraries' user services and operational success (Konlan, 2022; Abubakar, 2022; Sokari et al., 2017; Mafungwa, 2017). Venkatesh et al. (2003) have also echoed the usefulness of ICT in the academic space for improving productivity. However, Kwegyiriba et al. (2021) posit that, despite the incontrovertible evidence on the usefulness and appropriateness of ICTs, the limited use of ICTs in Technical Universities, including the library, has hindered its ability to alter and customise offerings, and discover new ways of managing information. The tardy pace at which the Accra technical university library is deploying ICT impedes its ability to provide remote access to resources, which limits its international presence and reputation. This may be due to the restricted insight into the phenomenon and the absence of context-specific strategies on ICT adoption and utilisation in Ghana. Therefore, a better appreciation of the challenges and the need to create tailored strategies for the adoption and utilization for Ghanaian Technical

University libraries. This will help address the difficulties of using unsuitable models or strategies developed largely for the technologically advanced nations, disregarding the context-specific aspects peculiar to Ghana's technical universities (Ismail & Mokhtar, 2016; Baker, 2011).

Anafo, Akpah & Ofori, 2020; Ibrahim and Issah (2021) argue that the absence of customised ICT adoption and use models and strategies for the Ghanaian context is what libraries of colleges and universities in Ghana are grappling with, despite the imperious need for them. Several issues, according to Baada (2018) and Anafo, Akpah & Ofori (2020), could explain why Ghanaian technical university libraries enjoy limited ICT acceptance: absence of ICT policies, lack of technical expertise, as well as social, cultural, legal, economic, political, and educational issues. However, the researchers are unsure about the reasons for the slow or low ICT adoption and use at this stage of the study. Therefore, the study problem to be examined is ICT adoption and use in technical university libraries in Ghana, the case of Accra technical university library with special focus on the diffusion of innovation theory and the technology, organization, and environmental framework. At the end of the study, the researcher intends to suggest a suitable strategy that will improve ICT adoption and use in the Accra technical university library.

Research objectives were to:

1. explore how Roger's adoption attributes of relative advantage influences ICT adoption and use in Accra Technical University library in Ghana.
2. explore how Roger's adoption attributes of compatibility influences ICT adoption and use in Accra Technical University library in Ghana.
3. explore how Roger's adoption attributes of complexity influences ICT adoption and use in Accra Technical University library in Ghana.
4. explore how Roger's adoption attributes of trialability influences adoption and use of ICT in Accra Technical University library in Ghana.
5. explore how Roger's adoption attributes of and observability influences adoption and use of ICT in Accra Technical University library in Ghana.

Research questions

1. How does Roger's adoption attributes of relative advantage influences ICT adoption and use in Accra Technical University library in Ghana?
2. How does Roger's adoption attributes of compatibility influences ICT adoption and use in Accra Technical University library in Ghana?
3. How does Roger's adoption attributes of complexity influences ICT adoption and use in Accra Technical University library in Ghana?
4. How does Roger's adoption attributes of trialability influences adoption and use of ICT in Accra Technical University library in Ghana?
5. How does Roger's adoption attributes of and observability influences adoption and use of ICT in Accra Technical University library in Ghana?

Literature Review**ICT adoption and use in academic libraries in Ghana**

Balogun (2018) claims that, available research indicates that substantial monetary considerations have been given by the developed countries for the digitisation of information resources. Baada (2018) asserts that, for almost four decades, academic libraries in developed nations have recognised the importance of ICT and have continued to deploy it for most information-related activities. Many libraries have successfully created fully ICT-mediated libraries with constant access to digital materials. Therefore, the utilisation of ICT library activities is a well-known notion (Baada, 2018; Ankrah & Atuase, 2018; Asamoah-Hassan, 2001). Despite this, situations in Africa, especially Ghana, show clear differences when contrasted with those in America and Europe (Baada, 2018).

ICT use in Ghana's libraries began early in the 1980s. However, the body of existing research does not provide an exact narrative on the ICT application of academic libraries in Ghana (Baada, 2018). Abubakar (2022) contends that the progress made in the deployment of ICTs for various jobs within academic libraries in Ghana, although fragmented, is worth acknowledging. This is because, although there are variations in ICT applications in libraries in Ghana, available research findings validate the achievements made, which are comparable to those of the advanced nations (Baada, 2018; Ankrah & Atuase, 2018).

Baada (2018) claims that there have been more uses of ICTs by libraries of Ghanaian institutions for the purposes of automating different aspects of their operations. He notes that, a small number of academic libraries start the computerization process in the early to mid-1980s that enabled the provision of several services like databases, and internet connectivity. It also aided the creation of digital catalogues which resulted in the development of Online Public Access Catalogues, bibliographic databases, and subsequently CD-ROM databases during the 1980s (Ankrah & Atuase, 2018).

According to Ibrahim et al. (2018), the use of ICT in college and university libraries has significantly increased, although this increase has come with difficulties. Rabah (2015) claims that the problems regarding acceptance and usage of ICTs are multifaceted and complex. These have influenced institutions, principally academic libraries, preventing them from reaching significant organizational goals (Akca & Ozer, 2014).

Libraries in Colleges and universities, including those in Ghana, are blamed for their insignificant adoption efforts (Obinyan & Unuabor 2013). People often blame the contemptible ICT deployment on the lack of qualified individuals and the inappropriate use of technology in the local context. There is available evidence to support the claim that ICT adoption has not produced a commensurate utilization (Ameyaw, Banji, & Boateng, 2019). This decline is caused by ignorance about ICT and its appendages, like e-learning websites and other tools supporting student-centered learning (Nyagorme et al. 2017). The capital-intensive character of ICTs is also causing their underuse because of their overprotection and control to extend their lifespans (Apawu, Yidana, & Apeanti 2012).

Studies on the correlation between ICT adoption and utilisation abound in literature (Adjei et al., 2020; Ameyaw, Banji, & Boateng, 2019; Baada, 2018; Plockey & Pwadura, 2018; Dzandu & Dadzie, 2012). Dzandu and Dadzie (2012) in their study found that most participants regularly made use of databases but at different levels and rates. Ameyaw, Banji, and Boateng's (2019) study revealed a substantial number of the students using the ICT tools available in the library, but only a small number of students used the CD-ROMs and scanning services. Similarly, Baada (2018) noted differences in the way study subjects used ICT tools. He blamed the Blame Library's organizational structure and culture for not using ICT as fully as it ought.

Another study by Adjei et al. (2020) revealed that insufficient standards and practices are elements stopping the digital preservation efforts in Ghanaian university libraries.

Attributes of Information Communication Technologies

Ugur and Koc (2015) have put forth five distinct impactful qualities for innovation adoption. According to Rogers (2003), this set of key attributes of relative advantage, complexity, compatibility, trialability, and observability exerts influence on innovation adoption.

Rogers (2003) suggests that how much a person or organization believes a new idea, system, or tool can provide more benefits than what they already have will likely affect their choice to adopt and use it. According to him, the acceptance of invention must lead to improvements in the efficiency and status of the person or organization concerned. Thus, the adoption of ICT in the library must lead to the ability to access information quickly, conveniently, and at a lower cost (Al-Jabri & Sohail, 2012). Teye and Duah (2022) explain that since universities and college libraries need to provide information quickly and accurately to users, they must evaluate innovations like the Online Public Access Catalogue (OPAC) based on how valuable, relevant, useful, and effective they are compared to traditional card catalogues before deciding whether to use them. This is based on the inherent motivation to attain personal satisfaction, value, or goals drives the adoption and utilisation of ICT (Teye & Duah, 2022). Therefore, in assessing the value and reputation of ICTs, issues such as expenditure and social effects are considered.

According to Rogers (2003), the compatibility concept relates to how well an invention fits the existing ideals and conditions. Sahin (2006) argues that the speed of adoption depends largely on how compatible one finds it to be. Compatibility and adoption have a positive link whereby the possibility of invention being adopted is greater when it fits the client's ways of life. Therefore, the compatibility attribute directly affects the rate of adoption, because a key component of innovation is its fit with the value systems of possible adopters (Rogers, 2003). Nevertheless, in other situations, the organization or person trying to acquire and deploy an invention may have to accept other sets of ideals to create agreeable and fitting association. This is especially important in cases when the innovation under consideration deviates from the existing system or cultural values (Al-Jabri & Sohail, 2012).

Complexity is the extent of an invention's originality to which an innovation can be fairly challenging for comprehension and usage (Rogers 2003). Alternatively, Al-Jabri and Sohail (2012) described complexity to be the apparent difficulty of a person or group understanding and applying an innovation. Simpler or more user-friendly new technology innovations often inspire positive opinions among the adopting society. According to Mallat (2007), the apparent lack of user-friendliness and ease of use of any technology qualifies it as complex. On the other hand, the apparent unfriendliness can discourage acceptance and use of interfaces or technologies. This means that the degree of complexity of ICT in the design of the invention, technical infrastructure, and complexity of use influences its adoption rate (Rogers, 2003; Mallat, 2007). Therefore, the alleged degree of complexity connected with ICTs hinders their incorporation and use (Al-Jabri & Sohail, 2012).

Trialability, which is the degree to which a notion, idea, or invention may be tried in a concrete sense or experimented with, is an additional feature of ICT. According to Sahin (2006), trialability is the ability to assess new technologies through experimentation before their acceptance. Rogers (2003) argues that the opportunity for potential adopters to try an ICT device meant for adoption increases their proximity to the innovation, provides them with the requisite knowledge about the way a thing being considered for adoption functions, thereby lowering the fears associated with adopting new innovations. This is because if an innovation lacks trialability, it usually increases doubt, leading to its rejection. However, if a new idea can be submitted to experimental sampling, it helps to reduce different unknown fears and ease the adoption process.

Rogers (1983) defined ICT's observability to be the extent to which the outcomes of an invention might be seen by someone different from the person adopting it. According to Hall and Khan (2003), observability is the degree to which the impacts or results of technological use could be seen or ascertained beforehand. This attribute directly affects an innovation's acceptance because for a technological breakthrough to be deemed as credible and suited for the intended purpose, it needs to be able to produce observable results (Rogers 2003).

Hall and Khan (2003) assert that the ability to test and observe a technology shapes the adoption decision. The more ICTs can be observed and verified, the more likely the innovation will be embraced (Atiso & Adkins, 2015). Hall and Khan (2003) argue that there is a direct relation between the visible results of the innovation and ICTs rate of adoption. Consequently, the opportunity to witness an invention inside a social system acts as the stimulus for peer conversation and helps the new idea to be accepted (Rogers, 1983).

A study by Al-Jabri and Sohail (2012) in Saudi Arabia on mobile banking adoption revealed that observability and complexity are crucial traits have significant influence on technology-mediated banking acceptance than others.

Theoretical Framework

The Diffusion of Innovation Theory (DOI)

The diffusion of innovation theory (DOI) is a theoretical framework that analyses the dispersal and acceptance of innovations in a community. The use of this framework spans various fields like commerce, education, and information systems, even if it has its roots in sociology (Achugbue et al., 2022). The DOI theory presents a notional basis about how an innovation spreads within a society (Rogers, 2003).

Various academic fields have adopted the DOI to examine new inventions from diverse viewpoints. This theory has greatly influenced the development of several concepts and frameworks for determining how an innovation spreads among people and groups (Aizstrauta et al. 2015). In spite of the significance of this theory, Kee (2017) notes that its pro-innovation leaning, individual blame bias, and knowledge gap bias have attracted criticism.

According to Xue (2017), the criticisms against the DOI have not affected its significance in information systems research. It continues to be recognised as a reliable theory that enables scholars in recognizing the factors influencing the proliferation of an invention and the justification for same. Achugbue et al. (2022) observed that due to its use, researchers in information systems have been able to effectively answer core questions relating to an invention's acceptance rate in any community. This has encouraged its application in various spheres (Kee, 2017).

Achugbue et al. (2022) contend that using DOI theory will enhance libraries' ICT acceptance and use. This is so because the theory's strength lies in its ability to help identify how invention spreads, laying particular emphasis on its features from several angles (Aizstrauta et al. 2015). It is backed by a set of linked assumptions and premises (Achugbue et al., 2022). This approach clarifies the mechanisms and motivations behind the acceptance and application of innovation at the personal and organizational levels (Al-Jabri & Sohail 2012).

Al-Jabri and Sohail (2012) uphold the claim that the DOI is distinctive with the capacity for a comprehensive assessment of how an innovation's characteristics influence its deployment. Likewise, Aizstrauta et al's. (2015) argue in favour of DIO. According to them, the DOI offers a systematic categorisation of invention decisions and stages of acceptance, different from other theories. This way, researchers' knowledge and opportunity to track the varied and sequential stages during an innovation's acceptance and usage is enhanced (Chui, et al. 2017).

According to Rogers (2003), the notions of diffusion and adoption, fundamental to the diffusion of innovation theory, differ, even though many researchers have used these terms interchangeably. He defined diffusion as the use of identifiable communication networks to spread innovations between people over a period of time in a community. Adoption, on the other hand, relates to the rejection or acceptance of an innovation by an organisation, unit, or individual (Kee, 2017).

Diffusion is an acknowledged occurrence where an innovation's reception, usage, and spread ensue within a community or system (Hall, 2003). This process happens progressively through several stages, such as knowledge acquisition, persuasion, and decision-making (Al-Razgan et al., 2021).

Methods

Creswell (2014) claims that various factors, including the research topic, the research questions, the researcher's own experiences, and the intended audience of the research project have bearing on this, might affect the choice of methods, procedures, and design of the study. The qualitative research method and interpretivist paradigm utilising an instrumental case study design, were used for this study because the researchers needed to explore and

comprehend the social meanings attributed to individuals regarding ICT adoption and use strategies for the Accra Technical University library. The current research effort entails a single case study. The researcher gathered data from the whole twenty-two (22) participants, given the smallness of the population. Data was collected through semi-structured interviews and analysing existing records. The study utilised interviews to obtain primary data. The researchers also analysed existing documents to corroborate the interview data to ensure data reliability. These steps boosted the trustworthiness and credibility of the research outcome.

The study adopted content data analysis to analyse collected data. Through the verbatim transcription of the participants' responses, the researchers familiarised themselves with the collected data. After that, the responses were organised into several themes to allow for important conclusions to be drawn. The information gathered from the interviews, observations, and documentation underwent a thorough selection procedure whereby only the relevant material was kept for study. Throughout the study, participants were informed that their personal data would be kept anonymous and confidential.

Findings and Discussions

The paper aimed to investigate the influence of Roger's adoption characteristics in terms of relative advantage, compatibility, complexity, trialability, and observability on the adoption and use of ICT at the Accra technical university libraries in Ghana.

Demographic profile of participants

This part provides the background information on the participants. The background data of the participants, include age, gender, education level, etc., which will help the researcher to examine the human elements influencing the adoption and use of ICT by a group or a person in social system (Kusumaningtyasa & Suwanto, 2015; Dei, 2018). Central to this study is the Diffusion of Innovation Theory (DOI), which answers the "how" and "why" aspects of ICT adoption and use in a society, at both the individual and organisational levels (Al-Jabri & Sohail, 2012). Most of the participants were female (13) representing 59%. This finding affirms the assertion made by Mbambo-Thata et al. (2019) that, historically, most of the personnel in academic libraries have been women.

Relative advantage

According to Rogers (1995), diffusion of innovation theory has enabled system researchers to predict the acceptability and spread of an innovation based on its usefulness or relative advantages. Relative advantage is the supposed advantages of a new system over the current one in terms of higher value, reduced cost, less risk, and other like criteria.

Findings showed that relative benefits, like easy access and dissemination of information, provision of greater benefits, environmental safety and friendliness, and reduction in effort influence ICTs adoption and use.

Evaluating the benefits of modern ICT tools compared to the old ones, the expense and societal standing of adopting the innovation is its relative advantage. According to Ibrahim et al. (2015), superior offerings or benefits such as enhanced value, reduced costs, minimised risks, and other advantageous factors are comparative advantages of an innovation critical in the decision to adopt and use ICTs.

The perceived advantage of ICT is highly connected to the way academic libraries employ such technologies. Raghu (2023) claims that the assumed benefit of using ICT tools promote their acceptance, use, and dissemination in a social system. Therefore, the degree to which people believe an invention will help to replace and improve current systems directly determines its spread speed.

phases of ICT acceptance and implementation from, from knowing about the technology to ensuring its usefulness. This is so because the decision-making process to adopt or reject an innovation is contingent on the successful appraisal of the technology in terms of relative advantage.

Easy access and dissemination of information

The study found that the staff would change the present system for a new one that enable easy access to information to customers.

The participants believe that the simplicity and ease of acquiring and sharing information when using ICTs justifies the expenses that comes with it. Mostly involved in procurement, preservation, and distribution of intellectual resources, libraries are (Plockey & Pwadura 2018). Therefore, staff adoption and use of ICT hinges on their conviction that, the incorporation of ICTs into

the library operations will improve access and distribution functions of the library in contrast with the past manual operations.

According to Baada (2018), ICT's ability to provide information services in a reasonable and high-value manner even when ensuring that everybody may readily access them without the typical worry related with the conventional libraries has changed the role of librarians. Unlike the manual

library setting, the participant(s) suggested that the rapid distribution and acquisition information from the processes of cataloguing, indexing, and classification on computers as a benefit of ICT.

Adjei (2020) argues that efficient information management is the main benefit of ICT introduction in academic libraries. Libraries mediated by ICT can quickly provide knowledge to their, on-site or far away, with minimal difficulties.

The participants seem to have increased their interest in ICTs because these technologies facilitate the international exchange of information with a single click by methodically classifying, organizing, and storing documents. This has, therefore, heightened interest in ICT acceptance and application in the Accra Technical University library.

The research outcomes agree with Plockey and Pwadura's (2018) view on the digitization or reorganisation initiatives observed in a few government university libraries. According to the study, the libraries at the selected universities are turning various kinds of library resources, such as theses, conference proceedings, and publications, into digital forms. This has solved the access and storage problems that hitherto existed in the traditional library environment.

Environmental safety and friendliness

Features of perceived advantages of ICT that affect their acceptance and application were environmental safety and friendliness. According to the study, the incorporation of ICT tools into libraries has helped lower environmental contamination resulting from less paperwork.

Environmental safety and friendliness of ICTs guarantee that they agree with standards and devoid of risks to safeguard the environment and users'

wellbeing. From the findings, it seems that the adoption and use of ICT, leading to ICT-based services like e-library, e-journals, e-dissertation, electronic catalogue, email services, etc., have expurgated the amount of garbage produced from damaged books and papers.

Academic libraries, according to Adebayo, Ahmed, and Adeniran (2018), serve primarily as knowledge and information hubs in any form or shape. So, the collection of materials that might be obsolete or unusable could largely be due to the procurement and organization of these knowledge resources. The filtering of the unwanted information resources poses environmental challenges, including pollution.

Conversely, the use of ICT for library operations has changed the culture of acquitting and storing printed materials in the form of individual sheets of paper to digitised resources. Information is now stored on computers in bits and bytes, in an environmentally pleasant style. According to Ibrahim and Issah (2021), the modifications and inclination for storing information in electronic formats have made the environment safer and better.

Plockey and Pwadura (2018) offer sufficient support for the study's results. Their research into ICT use to stock and distribute information resources in three public university libraries in Ghana revealed that, the libraries have included electronic formats like CD-ROM databases to store information. This has limited the quantity of paper-based information materials.

Reduction in manpower

The results reveal that ICT adoption and use at Accra Technical University library has resulted in the reduction in the volume of work. This has also led to a decrease in the number of personnel required to undertake library tasks. This is a testament of the relative advantage of ICTs to academic libraries.

Alando and Ewuntomah (2021) posit that, academic libraries deploy ICTs to modernise their operations and services. Consequently, libraries and librarians' purpose and obligations have been altered, resulting in the remarkable changes in information management practices.

Reduction in manpower means library-related functions are performed with less personnel because of ICT use. According to Baada (2018), a key benefit of ICT use is moving libraries from manual to ICT-mediated ones,

significantly altering the working circumstances of users and librarians. This modification has created the opportunity for self-services, which has encouraged greater involvement of end-users in pursuit of their needs, reducing the burden on the information professional. This has caused a substantial reduction in the reliance on labour-intensity; thus, encouraging a further rationalised and productive work environment.

With ICT taking a centre stage in all library operations, alterations in information management, from people-centered to process-centered approaches, have lessened the demand for more staff. Also, the presence of the online public access catalogues, and the automation of basic library activities like circulation have caused a reduction in human intervention and interference in patron information searching and access.

Available literature has largely supported the claim that ICT use in academic libraries has yielded relative advantages of reduced manpower (Al-Razgan et al., 2021; Menzli, 2022; 2016; Raghu et al., 2023; Ugur & Koc, 2015; Minishi-Majanja & Kiplang'at, 2005). The study revealed that there is a notable intention of students to utilise mobile learning due to the ease of learning with mobile learning compared to conventional mediums. Similarly, a study by Alrahmi et al. (2019) revealed that the intents of students to exploit e-learning systems in universities were caused by relative advantage and other attributes of the systems. Menzli et al. (2022) used Rogers' diffusion of innovation theory to look at how open educational resources are accepted in higher education and found that there is a favourable relationship between benefits, like saving effort, and the use of open educational resources.

Compatibility

The study recognizes that in academic libraries' acceptance of innovation, including Accra Technical University Library, is determined by the perceived compatibility of ICT to existing systems. This is an indication that ICT acceptance and use at the Accra technical university library is directly influenced by its compliance with current organisational culture as well as library operations.

According to Rogers (1995), compatibility is the ability of two systems or technologies to operate together. This means that if an innovation fits into the existing system, the more likely that it is accepted and use.

Compatibility of ICT with Organisational Culture

The results show that ICT adoption and use at Accra Technical University Library are contingent on the degree of compatibility between the ICTs that are to be adopted and the current organisational culture. The results also demonstrate a synergy between the new ICT systems and the dominant organizational culture at Accra Technical University, which promotes ICT adoption and use. For instance, the progress of institutional and departmental social media groups, the use of institutional emails by departments and individuals, and the increase in the university's ICT infrastructure changed the working environments into a new one.

Baada (2018) notes that not much research has been done on how organizational culture elements affect the ICT use in libraries of tertiary institutions. This has resulted in less focus on the organisations cultural elements that are worth considering before and during ICT project execution, leading to project. Adjei (2020) claims that a lack of knowledge of organisational culture and suitable ICT culture in higher education institutions has hampered ICT adoption and integration in tertiary institutions' libraries.

ICT deployment and usage that is effective will depend on a supporting institutional culture. The choice to accept and apply ICT depends much on how well it fits the present corporate culture.

The management of the institution appears to recognize its role in enabling ICT adoption and use by means of the development and maintenance of a suitable ICT environment and culture for CT acceptance and use. The participants indicated that, the Accra Technical University backed by a university-wide ICT policy and required ICT infrastructure, has taken actions aimed towards an ICT-friendly culture.

The existing supportive institutional culture at Accra Technical University confirms Ntim-Kodua (2020) stance that the existence of favourable institutional politics and culture is sine qua non for the successful deployment of ICT-mediated systems in academic libraries.

The findings of this study support those of other studies about the influence of well-suited workplace cultures on ICT adoption and use. Present literature on ICT (Adjei 2020; Ntim-Kodua 2020; Okere 2022; Akca and Ozer 2021), has conclusively established a positive relationship between ICT acceptance and

usage and workplace culture. Al-Jabri (2012), for instance, examined the several elements affecting the acceptance of mobile banking using Rogers' theory on innovation diffusion, discovered a causal association between compatibility and ICT adoption and usage. In addition to other difficulties, Okere (2022) discovered that most ICTs deployments are impacted by cultural elements like lack of attention to maintenance practices and inclination towards traditional ways of performing task.

Compatible of ICTs with Library Operations

The results showed that 'compatibility of ICT with library operations' influences ICT adoption and use in Accra Technical University Library. Akca and Ozer (2014) note that ICTs' ability to solve existing needs, values, and corporate applications of the organisation is a central feature that accelerates its acceptance.

The demand of users for services supported by ICT resulted in a shift in values and beliefs within the library domain, leading to calls for ICT acceptance and usage in Ghana's technical university libraries. Thus, the level to which academic libraries believe ICTs match their operations will help to enable the acceptance of ICTs. Therefore, the deployment of ICTs is to enable the library fulfill its goals of offering information at any time and location, free from the usual limitations connected with the conventional library environments.

Complexity

The results showed a more significant link between the degree of complexity and the degree of acceptance and usage of ICTs. Rogers (1995) claims that the complexity feature of an invention directly influences its pace of diffusion according to diffusion of innovation theory. ICT acceptance and utilization are influenced by the degree of user-friendliness and convenience usually connected to technological developments.

Rogers (2003) argues that complication in ICT adversely affects its speed of adoption, in contrast to the other characteristics. Likewise, Ibrahim (2015) notes that if the prospective adopter requires new knowledge and skills to use ICT tools, it slows down the pace of adoption when weighed against other tools that are simpler and easier to use. Therefore, ICT's complexity substantially restricts its adoption.

The following themes arose: ICT use requires intensive education and training; ICT use requires motivation; environmental safety and friendliness; and reduction in manpower. These themes are presented and discussed subsequently.

ICT use Requires Intensive Education and Training

Education and training were found to affect ICT applications at the library. The act of instilling and equipping a person with ICT-based knowledge and skills to enable them to perform their functions well is what is termed as education and training. According to Akcer and Ozer (2014), it encompasses how people obtain knowledge and expertise for the enhancement of organisational success. Thus, the need for training, empowerment, and motivation to persons to enable them to perform at their utmost potential for the library to attain growth is crucially beneficial (Baada, 2018). Conversely, the lack of adequate training and education for ICT use also has affected ICT applications in the library.

It is conclusive that the need for extensive education and training for ICTs use at the Accra Technical University library has deterred the staff. This is because, the staff can alternatively, switch to the manual ways of performing their jobs. Also, the older staff do not see the need to invest effort and time into using ICTs when they have shorter period to go on retirement.

ICT Use Requires Motivation.

The study's findings show that ICT use requires motivation. According to the study's participants, even though, ICT adoption and use offers noteworthy benefits, their application require changes to individual values and working styles. Staff will, therefore, require some level of motivation to make the needed adjustments to their values to accommodate ICTs into their daily routines. This situation has affected ICT application (Rabah, 2015).

According to Teye and Duah (2022), there could be improvements in ICT adoption and use if there are fitting packages to motivate staff, such as librarians. Such motivational packages could be in the form of material rewards and managerial support systems. These motivated staff may forgo present workplace behaviours for newer ones.

Observability

The findings revealed a stronger relationship between the extent of observability and the extent of ICTs adoption and use in Accra Technical University library. It also revealed that the visible attributes of ICT tools affect its degree of adoption and use. This means that ICT tools must produce measurable outcomes.

An important attribute that influences ICT application, according to Rogers' (1995), is observability. The extent to which the outcome of an innovation is visible to others can influence prospective adopters. So, the opportunity to observe another individual utilising and acknowledging the safety and/or advantages of the ICT tool is likely to lead acceptance. Significantly, an innovation may be adopted and use if the usage outcomes is recognisable and encouraging for future.

The identified themes are the demonstrable benefits of ICT and the demonstrable results from its implementation and these are discussed below.

Demonstrable Benefits of ICT

Demonstrable advantages of ICTs are the conspicuous benefit of the innovation which facilitate their application in academic libraries. The beneficial uses of ICTs have led to their acceptance at Accra Technical University library.

ICT adoption and use offer many advantages to academic libraries. The need for ICT distinctive feature to be observable by others during usage or testing will lead to a positive assessment and acceptance for it (Teye & Duah, 2022). The observable features of ICT validate any claim about it. Thus, the ability to observe ICTs functionalities and effectiveness has allowed Accra technical university library to experiment with pilot editions before deploying them.

According to Rogers' (1995, because ICTs take time to spread through communities, late adopter categories like the late majority and laggards can witness their outcomes before deciding to also adopt same. This helps them to form cogent views on these technologies before adoption. For example, an ad hoc committee on the state of library compared the ICTs of other academic libraries within Accra to those of Accra technical university library and made recommendations. The committee recommended for the installation of closed-circuit television cameras (CCTVs) and radio frequency identifications

(RFID), just as it has been done at Balme Library, to reduce the incidence of pilfering in Section 8.2(iv) of their report the.

Demonstrated Results of ICT

The observability feature of ICTs, as shown by the results influenced their deployment at Accra Technical University Library. The participants were interested in ICT applications, because of what they have seen ICTs, like computers, the internet, printers, photocopiers, and KOHA, do to improve services in other university libraries.

It is Teye and Duah (2022) view, a favourable outcome during the trials of ICT will positively influence the opinions of would-be adopters. The visibility of an ICT tool is the observability element of innovation. The implication for this is that the deployment of ICT is premised on the outcomes of ICT tools used by other university libraries.

Trialability

The study used the one-on-one interviews to elicit responses from participants on how the opportunity to try an ICT affects its adoption and use. According to the findings, have been tried before their eventual acquisitions. Those that met the requirement of the library after the trials were acquired whilst those that didn't meet the requirement of the library were abandoned.

Trialability basically refers to the potential to use ICT before acquisition of same. This way, the library can try and establish its supposed effectiveness, as against its authentic capabilities. ICT adoption and use has severely been influenced by trialability feature. According to Ugur and Koc (2015), the opportunity to fangle with ICTs, quickens its deployment.

The study finds that the rate of ICT adoption and use at the Accra Technical University library is informed by its trialability attribute. Therefore, if the library gets the opportunity to put an innovation to trial, there is a higher chance of the innovation being adopted.

The Library Adopts and Uses Free Edition of Software.

According to the study results, the Accra Technical University library has deployed trial versions of ICTs like the KOHA software for cataloguing.

The opportunity to test an innovation brings the potential adopter closer to the innovation (Akcer & Ozer 2015). According to Ibrahim et al. (2015), the

chance to use ICT before deployment foster's positive inclination towards its application. This is because, trying the technology create the avenue for the library acquire the needed information about how the innovation functions, reducing the fear and risks that comes with using new inventions.

The result of this study agreed with earlier research by Ugur and Koc (2015), Akcer and Ozer (2015), Ibrahim et al. (2015), and Kaminski (2011). Ugur and Koc (2016) conducted a study that revealed a positive relationship involving the disposition to adopt and use ICT tools and its trialability.

Conclusions and Recommendations

ICTs have evolved from normal library tools to high-end technology-enabled libraries that uses artificial intelligence. Nonetheless, the Accra Technical University library in Ghana is still adopting and using basic ICTs for rudimentary services. Also, many of the earlier studies about this phenomenon have dealt with academic libraries in Ghana in general. Hence, the necessity to explore the effects of Rogers adoption attributes on ICT adoption and use in Accra technical university library in Ghana is justified. Therefore, this paper mainly addresses the adoption and use of ICT in Accra technical university library in Ghana. The study used the Rogers' (1995) diffusion of innovation theory to examine the case under study. The paper ends with recommendations meant to improve the adoption and utilization of ICT in Ghanaian technical university libraries.

The study recommends that ICTs should have better features, benefits, lower costs, guarantees, or replacement to facilitate their adoption and use at the Accra Technical University library. Also, ICTs should be compatible with the existing systems by closing matching the goals, value systems, norms, lifestyles, culture, and day-to-day actions of the institutions that accept them. There must be opportunities to try ICTs before adopting and using them on a larger scale.

Ethical Statement

The researchers sought the consent of all participants by signing the consent form designed by the researchers. The researchers conducted their research in strict compliance with other ethical standards such as anonymity, voluntariness, integrity of research, and respect for persons. The researchers

also sought and obtained the approval of the management of Accra technical university to conduct their research within their premises.

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Authorship contributions

All the authors have contributed meaningfully to this research study. The concept and design were done collaboratively by both authors. Whilst the first author did the data acquisition, data analysis and interpretation, and drafting the manuscript, the second author did the revision of manuscript, as well as technical and material support.

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Generative AI Statement

There was a minimal use of artificial intelligence tools for purpose generation bibliographies. AI tools were also used to undertake summaries. The final output is our handiwork and we, therefore take full responsibility for this publication.

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Perceptions and Experiences of Climate Variability by Farmers in Nkwanta North District

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Abstract

The issue of climate change and variability is rapidly taking centre stage in most global discussions in recent times. The study examined farmers' perceptions and experiences of climate variability in northeastern Ghana. A mixed research design comprising questionnaires, focus group discussions, and expert interviews was adopted to gather data from respondents. Using the Jensen & Shumway formula sampling technique, 180 household heads who cultivated food crops were selected from four Nkwanta North District towns to administer the questionnaire. Results of the quantitative data from SPSS and Microsoft Excel were presented in tables and figures. Expert interviews and focus group discussions provided the qualitative data. The data was manually analysed through thematic content analysis and presented through quotations. The results exposed the fact that most farmers have beyond two decades of involvement in the farming business.

This experience made farmers identify variations in the climate system. Again, it led farmers to point out specific events such as increasing temperatures and a decreasing rainfall volume, coupled with prolonged drought, as the common variations that a great number of farmers have observed, which often resulted in low farm produce and many crops getting spoiled in the barns and storage areas. Although the perceptions and experiences of these farmers are limited to their locale, their assertions are certainly consistent with scientific data and reality. Based on this, their experiences should be taken into account when designing interventions needed to avert food insecurity. It is recommended that more extension officers be deployed to educate farmers on adopting improved crop varieties.

Keywords: *Agriculture, Perception, Experience, Climate Variability, Farming*

Introduction

The increase in global temperature resulting from various anthropogenic activities, including excessive release of greenhouse gases into the air, leads to changes in climate, which presents a substantial risk to humankind today. It is estimated that global temperature has risen by $0.6 \pm 0.2^\circ\text{C}$ on land and sea surface in the middle of the 19th century, indicating a continuous process over the years, and if concerted efforts are not made globally to reduce the emission of carbon dioxide gases, temperatures will further rise by 4.4°C by 2100 (FAO, 2015; IPCC, 2014).

Climate change impact has been so debilitating to the extent that unlike previously, rainfall distribution now is low at places that used to receive higher amounts and vice versa, characterised by a high level of unpredictability in weather patterns (Makuvaro, Walker, Masere, & Dimes, 2018; Kibue et al., 2016). This renders the experience of climate change a local phenomenon as much as it is a global phenomenon. Thus, the experience of change and how people interpret it matter a great deal. The crux of the issue is that how local farmers perceive and experience the impact of the change is key in designing approaches to deal with it in the local environment. These situations meaningfully impact most human livelihood activities that depend heavily on the climate. One such activity, without which survival becomes dire for humanity, is agriculture. This is particularly true in most developing countries,

especially those in sub-Saharan Africa, where many farmers rely on natural rainfall to cultivate their crops. Recent studies indicate that climate change has caused a reduction in agricultural output and, consequently, GDP by 2% to 7% in some African countries. As a result, climate change and variability are perceived as immediate threats to family sustenance in Africa due to their significant contributions to lower crop yields (Asrat & Simane, 2018; Yiran & Stringer, 2017; Porter et al., 2014).

The story in Ghana is similar to what is happening in developing countries of the sub-Saharan region. Studies in Ghana have shown that farmers have experienced a significant reduction in crop yields due to rising temperatures and decreasing rainfall throughout all the agro-ecological zones (Fagariba, Song & Baro, 2018; Ndamani & Watanabe, 2015; Antwi-Agyei, Dougill & Stringer, 2015; Nkrumah et al., 2014). To be specific, numerous concerns have been raised over food insecurity since most agricultural production in Ghana both natural rain and irrigation schemes for cultivation (Ofori, Cobbina, & Obiri, 2021). Whether local farmers are fully aware of and understand this development is a matter of utmost concern because their activities are climate sensitive. While understanding of the climate change phenomenon and its implications on agriculture has gained popularity, majority of the available knowledge is technical; in other words, grounded in scientific studies which concentrate on appraising variables of the biophysical aspect of climate change impacts (Juana, Kahaka, & Okurut, 2012; Yengoh, Armah, Yawson, Odoi, & Afrifa, 2010).

Although perceptions may not automatically be consistent with reality (Azar, G., 2014), they are vital in addressing socioeconomic challenges of man. In other words, they closely relate to people's settings such that there is either a direct or indirect linkage between the people's attitudes, behaviours, and subsequent outcomes (Kuskari et al., 2014). So therefore, in order to design any strategy that appropriately suits local situation and context, it requires that we understand what prevails locally from the point of view of the farmers. By this, there is a higher possibility of designing effective policies that will not be alien but rather be embraced by all the local farmers. This work takes a cursory look at the perception and experiences of farmers in the Nkwanta North District of the Oti region of Ghana on climate variability.

Materials and Methods

The study area

Nkwanta North is one of the eight districts that make up the newly carved Oti Region. The region was etched out of the then Volta Region. Nkwanta North District is sandwiched between Nanumba South, Kpandai, Nkwanta South Districts, as well as the Republic of Togo. It is endowed with a landmass of about 1,098.9 square kilometres. It falls between longitudes 0° 10' West and 0° 45' East of the prime meridian, and latitudes 7° 30' North and 8° 45' North of the equator (GSS, 2014). The general relief is comparatively low, and home to few hilly areas which height range between 100m to 200m above sea level. The District has a lot of streams and rivers, with notable ones being Morla, Kpassa, and Oti, which are the primary sources of fish in the District (GSS, 2014).

The type of vegetation is the transitional Savannah Woodland with drought-resistant trees that shed their leaves to reduce evapotranspiration during the harmattan season. The rainfall regime in the District is of the double maxima. The first begin from April to July, and it is the major farming season whereas August to September constitute the second regime which is the minor farming season. Temperature ranges between 11°C and 26°C (GSS, 2014). The soils are mostly of lateritic clay, savannah ochrosols, and oxysols origin (MoFA, 2014). These are very fertile soils, and good for agriculture. It should therefore not be a surprise for the dominance of agricultural activities across the District.

The agriculture sector alone provides jobs for about 80% of the populace in four different sectors of production. They are forestry or tree growing, livestock, food crop, and fishing/fish farming sectors (GSS, 2014). This undoubtedly means that every household in the District is either directly or indirectly involved in agriculture. Common crops produced in in the district are yam, cassava, sorghum, maize, and cowpea, just to mention a few. Animal husbandry is practiced for family sustenance, and the animals reared include cattle, sheep, goat guinea fowl, pig, rabbit, duck and turkey (GSS, 2014).

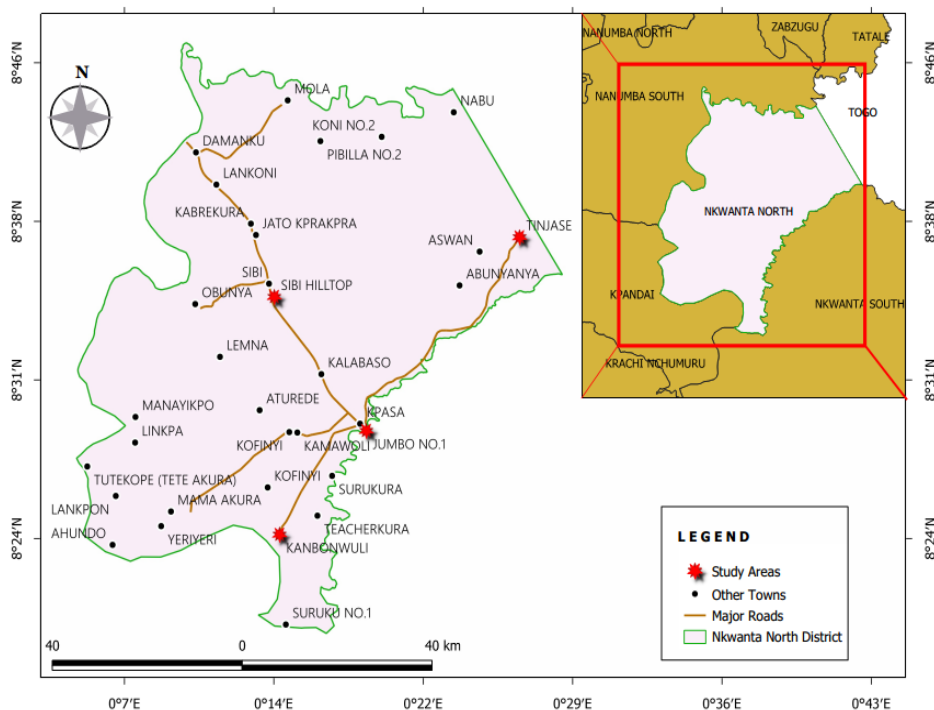


Figure 3.1: Map of Nkwanta North District
Source: Author's Construct, 2020.

Figure 1: Map of Nkwanta North District

Research design

Mixed method design (Creswell, 2017; Teye, 2012) was adopted in the collection of data and results analysis. The mixed-method research combines data from both qualitative and quantitative sources in single research. The qualitative design collected and analysed words (text) in the form of open-ended responses, whose answers to research questions were not predetermined. The data was analysed using themes and pattern interpretation of the data. The quantitative design collected and analysed closed-ended answers, which were mostly prearranged. These data were analysed statistically using SPSS and Excel.

Although the qualitative and quantitative data were analysed separately, they were integrated. The researchers were aware that combining qualitative and quantitative methods was more expensive, it was laborious, and very tedious for a single researcher to conduct (Johnson & Onwuegbuzi, 2004). However, the researchers considered it appropriate, considering the context of the study. This is to say that the mixed method has the ability to offer simpler

understanding of the research problem under consideration. Also, it was preferred because it provided convincing grounds for concluding convergence and validation of findings. Again, it helped to answer a wide range of research questions completely, which otherwise was often not the case in adopting only a single approach (Teye, 2012).

Sampling and data collection techniques

Sample size determination formula: $n = N / (1 + N (e)^2)$

Where n = required sample size

N = Total number of households and

e = level of precision = 0.05

$$\begin{aligned} \therefore n &= (1,200 / (1 + 1,200 (0.05)^2)) \\ &= (1,200 / (1 + 1,200 (0.0025))) \\ &= 1,200 / (1 + 3) \\ &= 1,200 / 4, \\ &= 300 \end{aligned}$$

Table 1 gives the breakdown.

Table 1: Sub-Sample Size Determination

Community	Number of Households (N)	Original Sample Size (n)	Adjusted Sample size (n)
Sibi Hilltop	613	153	84
Tinjase	305	76	50
Kabonwuli	154	39	25
Jumbo No. 1	128	32	21
Total	1,200	300	180

Source: Field Survey, 2020

Sampling procedure

The selection of communities for the research was done using a multi-stage sampling technique. Stage one involved putting the district into four different clusters. They are North, South, East, and West, to ensure geographical

representation. The second stage involved a listing of all the main agricultural communities in on pieces of paper as obtained from the district directorate of MoFA. In the third stage, a single piece of paper representing a community was randomly picked from each of the four clusters. This exercise resulted in the selection of Tinjase, Sibi Hilltop, Kabonwule, and Jumbo No. 1 communities, which were used for the study. This fourth stage involved the identification of a major agricultural household in each of the four communities and selecting them to serve as a sample frame. In the fifth stage, 180 household heads who mainly cultivated food crops were randomly selected from each of the four communities. This stage was preceded by assigning numbers to the households in each community. The desired sample size was then selected from among the chosen communities in accordance with the formula above.

Data sources for the study

Primary quantitative and qualitative data were elicited from the heads of chosen households, agricultural extension officers as well as the Director of Agriculture in the district. Secondary data (Flintermann, 2014) obtained comprised census and other reports from the District Assembly, and annual temperature and rainfall distribution figures from the Ghana Meteorological Agency.

Data collection techniques and tools

A cross-sectional survey (Mathers, Fox, & Hun, 2007) was adopted using a self-administered questionnaire to elicit information from one hundred and forty-nine (149) male and thirty-one (31) female household heads. It is observed that there has been a bias against women. Even though this was unplanned, it was expected because most household heads were men and were the major decision makers. In furtherance, ownership of land lay largely in the hands of men, and so smallholder women farmers did not necessarily farm on their land (Ndamani & Watanabe, 2015). The data that was collected employing questionnaires were analysed by coding and entering them into the Statistical Package for Social Sciences (SPSS) version 25. They were all analysed using descriptive statistics in the form of percentages.

In addition, the expert interview was conducted to elicit information from the district director of agriculture as well as the extension officers (Abawi, 2013;

Crow & Pope, 2008; Ho, 2006; Kvale, 1996: 174). Focus group discussion was used to obtain data from individual farmers put into groups across the communities (Sherraden, 2001). The district MoFA director and extension officers served as the experts who took part in the in-depth interview. Expert interview and Focus Group data were analysed through detailed thematic content analysis by subjecting the field notes to intense reading to ensure clarity. Further, the notes were scrutinised for key ideas, consistency of ideas, and categorisation into themes. Respondents were quoted to validate the quantitative data. Field observation (Ciesielska, Bostrom, & Ohlander, 2018) was also employed by the researcher by visiting farms to observe how yams were rotting in the barns. The results, which were obtained in pictures, were also used to support the assertion of farmers.

Results and Discussion

Results of the analysed data on farmers' perception of climate variability, climatic events experienced, as well as perception of rainfall and temperature variability in the study area are presented here.

Farmers' perception of climate variability

Here, the research question sought to find out if farmers perceived variation in the local climate within the district. The results, as shown in Fig. 2, showed that most farmers (98.3%) were aware of variation in climate within the district, and this is in sync with most studies (Hameso, 2018; Clarke, Shackleton, & Powell, 2012). Although most of the farmers in the district belonged to the illiterate group, they were very experienced in their business and were aware of the changes that occurred in their local weather patterns. They might not be in the position to interpret it scientifically, but their perception of expressions was not different from scientific data.

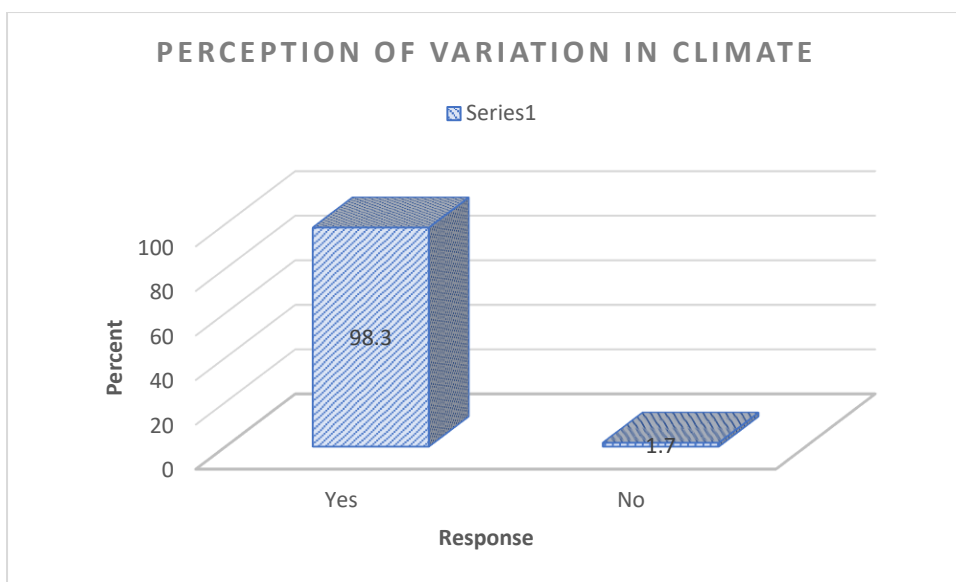


Figure 2: Variation in climate as perceived by farmers

Source: Field Survey, 2020.

A similar opinion was expressed by the district director of Agric as quoted below:

“A lot of agricultural potentials abound in the district, which have not yet been explored. Formerly agriculture in the district was a very lucrative business. Unfortunately, the story is not the same currently as a result of the continuous variation in the climate regime. Unstable rainfall regime is the major challenge that farmers are battling”
(Interview with district director (MoFA), February 2020).

Climate events experienced by farmers

A study in Swaziland found that a decreasing frequency, intensity, and duration of rainfall was evident (Mamba, Salam, & Peter, 2015). Several other studies also expressed similar opinion on the fact that the activities of farmers were in direct relation with climate and so were better placed to confirm variation in climatic events as experienced. In like manner, the researchers wanted farmers in the study area to point out specific climatic events that they have experienced, if indeed they have perceived variation in the local climate. It was therefore not surprising when the results sanctioned that majority of farmers have experienced delay in the coming of the rain, early truncation of the rain, an increase in rainfall intensity, coupled with high storms, leading to persistent flooding in low-lying areas.

In the same vein, the results, as shown in Fig. 3, show that the majority of the farmers have experienced prolonged periods of drought. Accordingly, a vast majority of the farmers have opined that there was an increase in day and night temperatures. The overwhelming proclamation of farmers (100%) about the appreciation in day and night temperatures confirmed that the prevalence of climate change is no longer a perception but a reality to farmers in the district as it conformed to most studies conducted (Hameso, 2018; Limatol, Keith, Aziabre, & Lennartz, 2016). Perhaps the quotation below would emphasise the severity of prevailing climatic events experienced by farmers in the district:

“With all due respect, observing from the environment, can you tell any sign of rain on the ground in recent times? Simply put, the dry season has stayed for too long. Some years back at this time, we had received at least one rainfall, but to date, not even a drop. Situations like this open the avenue for the emergence of these worms (army worms) which chew leaves of the crops. Worse of it is when the rains are due to fall, they fall as though all the water in the clouds must get exhausted before it subsides, and after that heavy rainfall it will take a very long time for us to receive another rainfall. My colleagues are here to bare me witness. These heavy rainfalls usually lead to the flooding of people’s farms. Those whose farms were not flooded could also not go to the farm due to rivers and streams overflowing their banks” (participant in FGD, February 2020).

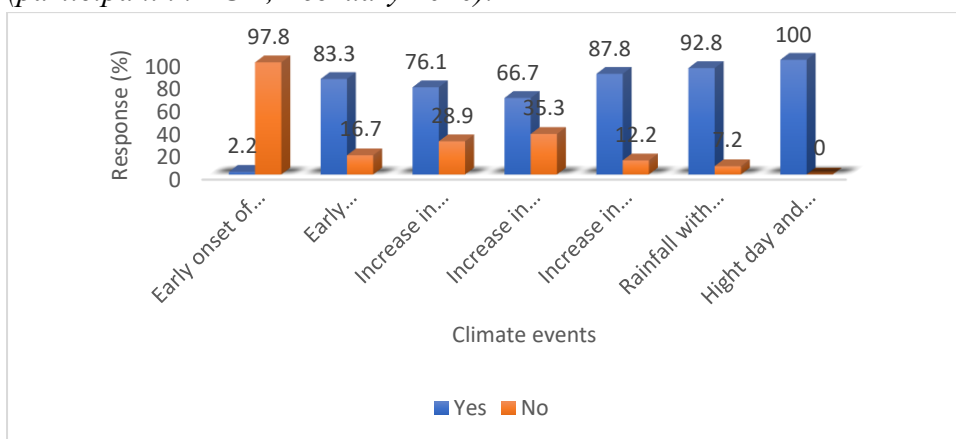


Figure 3: Climate Event as Experienced by Farmers

Source: Field Survey, 2020

Perception of rainfall variability

Farmers were asked questions with relating to their perception on whether there was variation in recent rainfall pattern within their district, almost all (99.4%) respondents concurred that they have been very much aware of the irregular rainfall patterns over the past two decade. The perception about the inconsistency in rainfall could not be underestimated because it was limited to their environment; rather, it provided insight on localized observation as pertained to most geographic settings. Further, the responses were in consonance with recorded data from the Ghana Meteorological Agency as portrayed in Figure 4.

It is apparent from Figure 4 that volume of rainfall reduced from 1854mm to 1422mm between the years 2008 and 2018, such that instability in the average amount is evident. The year 2015 recorded the least rainfall volume, which was 994mm. however, the year 2016 witnessed an increase of up to 1096mm, and since thereafter rainfall volumes kept increasing. On the other hand, although there had been an upward recording, it has always been below the average figure of 2008, which goes to prove that the amount of rainfall received kept varying over the decade under study.

District average annual rainfall patterns

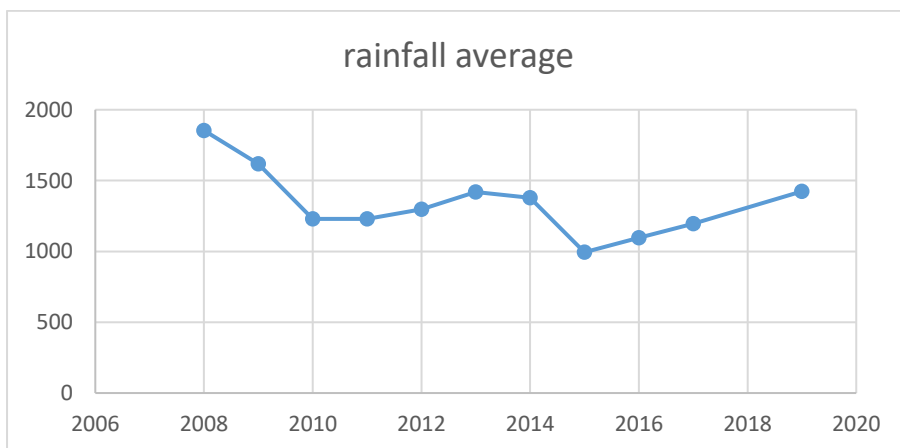


Figure 4: Average rainfall amount between 2008 and 2018

Source: Ghana Meteorological Agency, 2020

The findings added extra credence to the work of Asiedu, Adetola, & Kissi (2017), that rainfall has been irregular for the recent past half decade.

Nevertheless, the unpredictable nature of the rain adversely affected farmers' zeal in preparation towards the farming season. Very low rainfall regime is indicative of looming crises of food insecurity among farming households and by extension, the nation at large. Possibly highlighting this point, one farmer had this to say:

"The current rainfall regime is not predictable, compared to some decades back where we could easily tell the start of the rains and when it would stop with higher precision" (participant in the FGD, February 2020).

Form of variation in rainfall as perceived by farmers

Again, farmers were asked to outline specific events indicating why they perceived variation in rainfall within their locality. Although rainfall was seen as a major factor which determined the scarcity or abundance crop yields, the total volume that was received usually did not matter as much as the even distribution during the cropping season. In view of the fact that the area was located within the transition agroecological zone, the results as shown in Fig. 5 indicates that rainfall has been decreasing in duration was consistent with other studies (Antwi-Agyei et al., 2015; Nkrumah et al., 2014). It was therefore not out of place to conclude that farmers did not get rainfall in the right amount at the beginning of land tillage, and even through the planting period. This situation obviously led to poor yields of crops. In echoing this point, a farmer reiterated that:

"In the days of our youthful stage, the rains came in and left at highly predictable times. At the time, it didn't always fall too heavily or too little, but was uniformly distributed over the planting season. Similarly, farmers had ample time to till land, to plant crops, as well as to control weeds, and even some break to relax before harvesting time was due. Currently, the rainfall regime has taken a very unfamiliar and indeterminate dimension" (participant in the FGD, February 2020).

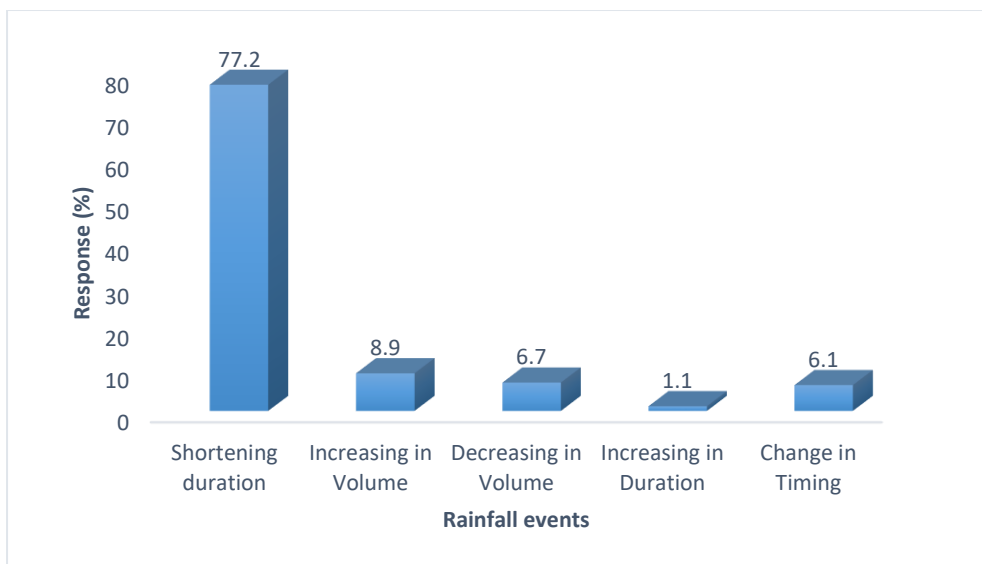


Figure 5: Form of variation in rainfall as perceived by farmers

Source: Field Survey, 2020

Perception of temperature variability

The researchers sought to explore the perception and form of temperature variability from farmers within the study area. In all the communities visited by the researchers, the majority of the men and women were seen seated under shady trees. One would have thought sitting under the trees was enough, but even that, most of the men had shirts or singlets either placed on their shoulders or completely removed. The situation suggested that the people were feeling warm but to confirm the observation, respondents were asked if there was a variation in the temperature and why most of the men had removed their shirts. As shown in Fig. 6, a large proportion of respondents (99.4%) responded in affirmation that there was a change in temperature, and that the change was more of an increase. The quotation below reinforces the researchers' observation.

“From your observation, we have removed our shirts, right? Let it not appear to you as if we are happy sitting here, or we like to walk bare-chested. It is a result of the excessive heat. The heat these days is too much, and it is not as though it applies only to the diurnal temperatures. You can pay a visit in the night as well to see the number of families sleeping outside their rooms. The least said about the rooms, the better. This is to say that it appears as though the heat from the sun during the day was being stored in the rooms and released at night.

Clearly, a significant number of us in this community cannot remember the last time we slept in our rooms” (participant in FGD, February 2020).

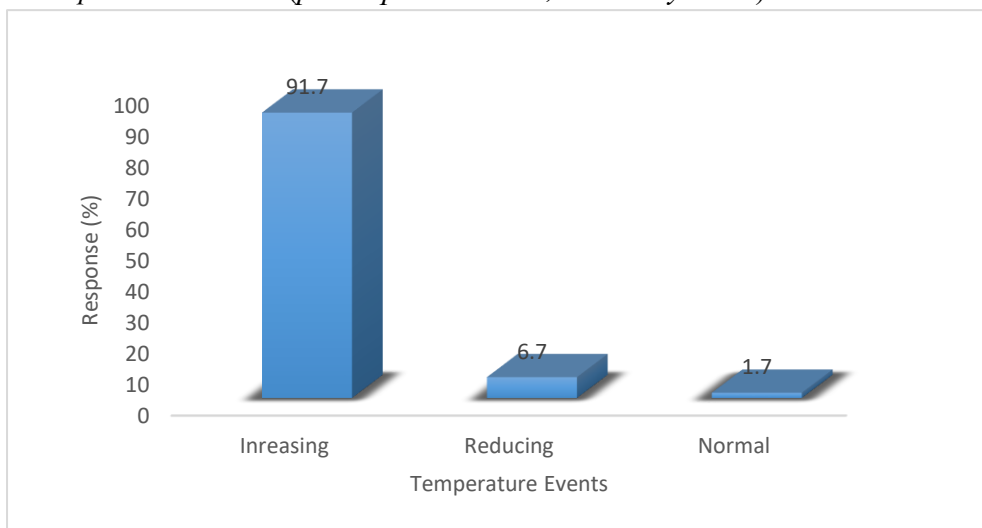


Figure 6: Form of variation in temperature as perceived by farmers

Source: Field Survey, 2020

The results, as shown in Fig. 6, were in sync with the official records between the years 2008 and 2018 as obtained from the Ghana Meteorological Agency. This revelation has dire implications on farming and other related agricultural activities, in the sense that increased temperatures often result in complete loss of soil moisture as well as severe reduction in such some tree species like dawadawa, mahogany, shea and the neem, food crops and livestock (Fagariba et al. 2018; Yiran & Stringer, 2017). Consequently, most farmers would experience high on-field or postharvest losses due to excessive heat, as pointed out by some farmers, that most of their yam species have disappeared. That aside, a greater portion of their yam in the barn appeared nice outside, but as soon as you lifted them, they fell off, signalling rot as shown in Figure 7.



Figure 7: Separation of rotten yams from good ones in the barn as a result of excessive heat.

Source: Field Survey, 2020

Temperature information gathered from 2006 to 2020 from the Ghana meteorological Agency showed that, between 2008 and 2018 average temperature has risen from 270C to 290C. However, in between the years under consideration, temperatures have been oscillating. This however was a great source of worry to farmers and especially crops that were very sensitive to the slightest change in temperature because, a 10C increase in temperature speaks a lot. This fluctuation, coupled with the wide seasonal discrepancies, clearly indicates variability in temperature (IPCC, 2007) as shown in Figure 8.

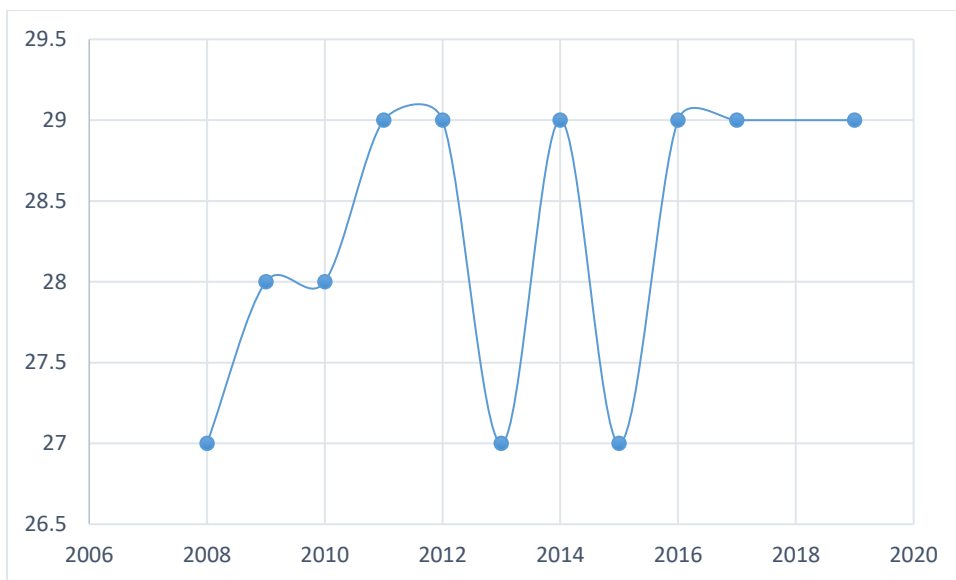


Figure 8: Average temperatures between 2008 and 2018

Source: Ghana Meteorological Agency, 2020

Conclusion

The aim of the study was to assess the perception and experiences of farmers in the Nkwanta North District in north-eastern Ghana on of climate variability. The results revealed that majority of the farm households were aware of the variation in the climate. They were able to identify variation in the elements of climates as well as specific variations that were experienced in the major climatic elements. Some of the variations identified were late onset of rainfall, lengthy drought season and increased day and night temperatures. It is therefore concluded that even though farmers' experience was limited to their local area, there is strong evidence to suggest that it is consistent with the literature and scientific data. Given the fact that most farmers became aware of variation in the climate based on their experiences, it is recommended that more extension officers be deployed to educate farmers on improved ways of farming and to introduce them to high-yielding crop varieties that can cope with drought. This will go a long way to make them risk-averse in times of lengthy drought as well as ensure food security.

Ethnical Statement

The participants expressed their willingness to participate in the study after explaining the essence of the study to them in their local language under the guidance of an assistant. They therefore voluntarily provided their frank opinion to questions in the focus groups and the to the questionnaire. The manuscript has been proofread to improve its language linguistics.

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Conflict of Interest

The authors confirm that there is not any conflict of interest with regards to the publication of this article.

Authorship Contribution Statement

Yeboah: Conceptualisation, Writing, Design, Analysis. Yaro: Editing/ Reviewing, supervision, guidance. Magya: critical revision of manuscript. Oppong-Mensah: critical revision, proofreading and final approval.

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We also wish to state that there was no use of AI tools such as ChatGPT in the course of the work. In view of this, we, as the authors, take full responsibility for the content of our published work.

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Investigating the Effects of English as a Medium of Instruction in Dambai College of Education in the Oti Region of Ghana

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Abstract

The purpose of this research was to investigate the effects of employing English as a teaching language at Dambai College of Education in Ghana's Oti Region. The study is conducted using a mixed-method design. Purposive and basic random sampling were used to gather data via questionnaires, in-class observations, and interview schedules. The results showed that students in education colleges grow to have a favourable opinion of the employment of English as a medium of instruction. In a similar vein, tutors and their pupils understand that learning English improves students' employment prospects and enhances their acceptance around the world. The results also imply that because not all students can understand the material presented, using English as a medium of instruction increases the likelihood of school dropout. Despite this, it was found that pupils' competence levels are raised when they use English.

Lastly, the findings imply that students struggle to ask or answer questions when English is employed as a medium of education because they are not learning enough vocabulary. Therefore, it makes sense for tutors to concentrate on helping their pupils develop the knowledge and abilities that will improve their comprehension. It is suggested that language alternation pedagogy raise English proficiency in Ghanaian educational institutions.

Keywords: *Colleges, English, Explore, Effects, Medium of Instruction*

Introduction

Because it promotes critical thinking, effective communication, and knowledge acquisition, language is vital to education. In multilingual countries like Ghana, students' academic performance, engagement, and overall learning outcomes are significantly influenced by the language used for instruction. English is frequently used as the medium of instruction (EMI) at all educational levels, including colleges of education, because it is Ghana's national language. Nonetheless, there are advantages and disadvantages to using English as the main language of teaching, especially in settings where the majority of teachers and pupils do not speak it as their first language.

Students from a variety of linguistic origins are admitted to Dambai College of Education, which is situated in Ghana's Oti Region. Many of these students are more fluent in their native tongues than English. Although employing English as the primary language of teaching is consistent with both national and international educational norms, it may have an effect on students' involvement, understanding, and academic engagement. According to certain research, EMI improves students' English language skills and gets them ready for both academic and professional success. Other study, however, emphasizes challenges including limited classroom contact, diminished student confidence, and linguistic impediments when students struggle with English competency. Despite these continuous debates, little empirical study has been done to specifically examine how EMI affects students' academic performance and learning experiences in Ghanaian education colleges, especially in the Oti Region. These ramifications must be understood by curriculum designers, educators, and policymakers to ensure that instructional practices support inclusive and beneficial learning. The purpose of this study is to investigate the effects of teaching English at Dambai College of Education, looking at both its benefits and drawbacks while making recommendations for possible

ways to improve instruction and learning outcomes in multilingual environments.

Review of Literature

This section provides an overview of the related sources that was used to draw up this study. There has been much debate over the use of English as a Medium of Instruction (EMI) in educational institutions in multilingual settings, particularly in places where the majority of students do not speak English as their first language. Dambai College of Education in the Oti Region is one of the educational institutions that uses English as its primary language of instruction because it is Ghana's official language.

Although EMI aims to improve students' English language skills and conform to international academic standards, its ability to promote learning and knowledge acquisition is still up for debate. Researchers have investigated the advantages and difficulties of EMI, looking at how it affects students' academic achievement, involvement in class, and overall educational practice. This review of literature critically examines existing studies on EMI, focusing on its implications in multilingual settings, the difficulties students and instructors face, and potential strategies to improve teaching and learning outcomes in Ghana.

Impacts on academic achievement

According to Mchazime (2001), this makes students linguistically unprepared for instruction in English. Their limited proficiency in the language hinders their ability to participate in academic pursuits. He continues by stating that pupils who are taught in their mother tongues outperform those who are taught in English in terms of academic achievement. Speaking regional languages benefited both groups, he argues, while speaking English seemed to hinder their performance. By examining the impact of English as a medium of teaching on students' academic development in Social Studies in Malawian primary schools, he sought to ascertain whether English is the best language of instruction for senior primary school students in Malawi.

The subject of whether using English improved students' engagement in the learning process was also covered in the study. Based on the data analysis, Mchazime recommended that the language policy be reviewed and re-examined, and that Malawian teachers be retrained. Despite not having

English as a language of instruction in their educational institutions, several countries are achieving scientific and technical advances. Consequently, indigenous languages should be taught in Ghanaian schools as a supplement to English and the English language should be given less importance in our educational system.

Effects of teaching in the English language

Kwapong and Aboagye (2010) claim that teaching in the indigenous language and English do not significantly differ in terms of academic achievement. They investigated how mathematics performance at the Lower Primary schools in Ghana's Suhum Kraboa Coal Tar District was affected by the use of English and regional languages. A test was used to get the data. They concluded from their findings that the teachers in a school should choose the medium of instruction based on the students' proficiency in the language. However, there is another reservation about the recommendation in the current study.

This is due to the fact that policymakers, not policy implementers, choose the medium of education. Therefore, lawmakers would fiercely oppose any effort by school personnel to choose a medium of teaching, as Kwapong and Aboagye proposed.

Similar to this, Dogo (2016) makes the case that instructors are becoming more proficient in English as a teaching language and that their degree of readiness for teaching and learning has increased. Additionally, the impact of the English language on student achievement has significantly improved. These findings were from research that looked at how the English language affected mathematical modelling instruction and learning in a few Nigerian junior secondary schools. This study examined the English language competency levels of teachers, how they handle teaching algebraic word problems, and how ready they are for challenges.

Perception of English as a teaching language

Faculty and students view language competency and the difficulties of teaching in English differently, as Rogier (2012) opines. Students do not think that studying in English causes issues, despite teachers' disagreement that students' language skills meet the prerequisites for learning in an English-

medium environment. During their studies, both teachers and students believed that their English language skills had improved, and they usually credited exposure to the language for this.

Rogier examined the impact of English-medium instruction on language competency in the context of higher education in the United Arab Emirates by looking at changes in the language proficiency of undergraduate students at one of the universities. He contends that they might detect improvement because the university first admitted low-level students. However, because their errors went unnoticed, they were unable to advance their proficiency over a certain point. After students reached their major field of study, language development received minimal attention.

However, until they graduated, the study participants' language skills improved statistically significantly. Additionally, he contends that while the material offered to students seems difficult enough to sustain some language development, it falls short of what the school requires of graduating students.

Rogier claimed that the requirements for language learning beyond a certain level seemed to be missing the noticing and the focus on form that would push them past their current stage and increase their accuracy. He consequently proposed strategies to enhance current practice, including bettering the promotion and monitoring of available support services, creating services and programs that would provide students with a more integrated language learning and content experience, having more specific language goals, changing perspectives on the accountability of language acquisition, and expanding assistance for both teachers and students.

In Rogier's (2012) study, a case study—which is generally regarded as entirely qualitative—was combined with a survey technique, which can be somewhat quantitative in character. Rogier suggested that future research in the field of language development focus on the following areas: the role of exposure and output at higher levels of proficiency; the impact of exposure to language in countries where English-language media and expatriate labour are becoming more globally distributed; and the potential impact of perceptual differences in teaching and learning on the perception of language ability.

Similarly, Albakri (2017) argues that practical grounds justify the English as a Medium Instruction (EMI) model, pointing to the language's practical value

as a lingua franca and its importance for future employment. However, he admits that pupils' academic difficulties are mostly caused by their poor language skills. In this sense, he maintained that teaching in local languages would lead to a deeper understanding of the subject matter and probably better academic performance.

He also emphasizes how the introduction of EMI had a detrimental psychological impact and a disempowering effect on students who did not speak English well. Students do not have equal access to postsecondary education under the EMI policy. This came to light when he looked into the opinions of students regarding the English as a medium of instruction (EMI) policy that was being applied at a public university in Oman and how it influenced their academic achievement and the standard of their educational experiences.

One of Albakri's many suggestions are to improve English language instruction (ELT) in schools so that kids are better prepared for their academic studies in the language. Teachers should also be given the opportunity to become pedagogically competent so they may employ a student-centred teaching strategy. Lastly, by setting up study centres that students can use if they run into any academic issues, the college should improve student assistance in their studies, particularly in EMI.

Methods

The research questions are investigated in this study using a mixed-method technique. In a single study, mixed-methods research involves gathering and analysing both quantitative and qualitative data (Creswell et al., 2011). Prioritized, contemporaneous or sequentially acquired, and integrated at one or more stages of the research process are the data.

They point out that collecting data at the same time enables the researcher to look for and contrast the two types of data in order to uncover findings that are consistent. Therefore, the study employed both quantitative and qualitative methods.

This combination of approaches was chosen because it promotes the study's objective, which is the use of English as a medium of instruction in educational institutions, and it is applied to a representative sample of Level 200 and Level 300 students from Dambai College of Education. This is because the approach

can use a range of instruments, such as focus groups, questionnaires, and observation, to gather data from participants in their natural settings in order to fulfil the objectives of the study. Additionally, the limitations of any one method are supplemented by the mixed-method approach. Thus, the findings are reinforced.

The main goal of employing both quantitative and qualitative responses in research is to guarantee the validity, calibre, and uniqueness of the replies pertaining to the phenomenon being examined. Additionally, the study will use one component of the responses as supporting data (Creswell & Plano, 2011).

The sample and the sampling process

Purposive sampling and basic random sample were the two sampling strategies used in this investigation. While simple random sample was utilized to choose student respondents, purposeful sampling was utilized for tutors. There are 1,260 students at the Dambai College of Education, including 249 first-year students, 466 second-year students, 245 third-year students, and 300 Level 400 students. There are also eight English tutors on staff. Two hundred second – year and two hundred third-year College students made up the sample of 400 students. As previously stated, 200 males and 200 women were chosen from the selected sample, respectively, to guarantee gender parity.

Purposive sampling for tutors

Since English language tutors are familiar with their students' comprehension of the use of English as a medium of education, this sampling technique was chosen for tutors. They are the ones who have made an educated assessment of the pupils' proficiency in the English language. Purposive sampling also has the benefit of being economical and time efficient.

Simple random sampling for students

In this instance, every single student was picked at random, and every student in the student body had an identical chance, or probability, of being chosen. The responses were divided into males and females to provide gender parity. Under the sponsorship of the Ghanaian government, Transforming Teacher Education and Learning (T-TEL) promoted measures to address gender sensitivity issues in education colleges, which served as the foundation for the

decision to choose students in an equal male/female ratio. Paper pieces were cut according on the number of pupils in each category.

Two hundred pieces of paper were marked "Yes" for each gender, while the remaining parts were marked "No." Everyone who answered "Yes" made up the study's sample. The decision to use basic random sampling lessens selection bias and makes it possible to calculate the sampling error. One particular benefit is that it is the simplest technique for probability sampling.

The study's participants were eight English language tutors and second and third-year students at Dambai College of Education. The College was chosen due to its close proximity, ease of use, and status as the sole postsecondary school for teacher training located in the centre of the recently established Oti Region. Due to their length of time in the college system, the year batches of students were chosen with that in mind. They were also familiar with the College system. In addition to conducting individual interviews with each English teacher, the focus group interview's target participant pool consisted of 40 groups of ten students. Four hundred pupils were selected to serve as representatives.

Description of the research site

Located in the centre of the recently established Oti Region, the Dambai College of Education is the sole postsecondary institution dedicated to teacher preparation. In 1974, it was founded. The college was chosen due to its close proximity, ease of use, and status as the sole postsecondary school for teacher training located in the centre of the recently established Oti Region. An analysis of the data utilized for the study is shown in the table below.

Table 1: The study's sample, tutors

<i>Category</i>	<i>Frequency</i>
Tutors	8
Total	8

Table 2: Sample selected for the study (students)

<i>Category</i>	<i>Frequency</i>
Year two student-teachers	200
Year three student-teachers	200
Total	400

Table 3: Distribution of the sample by gender (students)

Category	Frequency
Male	200
Female	200
Total	400

Methods of data collection

Interviews, in-class observations, and a questionnaire were used to collect data for the study. The survey was modified from Agyemang-Prempeh (2018) and Rogier (2012). This is because they looked into related topics in various contexts.

As stated before, data was gathered in three phases to examine English as a teaching language at Dambai College of Education. Student participants' perspectives on the value of teaching in English, the challenges of doing so, and the outcomes of teaching in English in educational institutions were gathered during the first phase using a standardized questionnaire. The pupils were also asked to rate their proficiency in speaking English and completing the given tasks.

Questionnaire

Data from the respondents was gathered using questionnaires so that the findings could be extrapolated to the entire population. Universities have an academic calendar, therefore the researcher had a deadline to complete the study. Furthermore, because structured questionnaires are faster to handle and analyse than word-based data, researchers used them in this study (Cohen, Manon, & Morrison, 2007). If participants feel at ease answering questions, using a structured questionnaire could also be beneficial for a big sample size. The research questions are directly related to the items in the questionnaire's five (5) sections.

Respondents were requested to provide their opinions on each of the five areas in response to a series of questions. The purpose of the first section was to get the students' thoughts on why they choose to learn English. Finding out what individuals believed about the effect of English instruction on education college students was the aim of the second section. In the last two (2) sections of the questionnaire, the respondents were asked to rate their level of English proficiency and their ability to complete certain activities. 390 copies of the

400 copies of the questionnaire distributed to students were received, along with eight (8) surveys from the teachers.

Focus group interview

The focus group interview was the second step. By serving as a moderator or facilitator, focus group interviews allow the researcher to gather a large number of participants at a suitable time and location to gauge their thoughts, emotions, and experiences on a subject being studied (Bell, 2008; Marvasti, 2004). The study's research questions served as the basis for the questions in the semi-structured interview guide. Focus group interviews were used with the pupils. As stated before, the focus group interview sample consisted of 40 groups. The targeted interview was built upon the developed themes.

One-on-one interview

All of the college's English language tutors participated in one-on-one interviews. Due to their small number, the tutors were interviewed one-on-one. A recorder was used to conduct the interviews, and the recordings were subsequently transcribed. This was done to guarantee that the participants' comments and viewpoints were legitimate.

Observation

Observation was the last stage. The need to understand phenomena, events, processes, reactions, behaviours, and relationships drives observation, which is guided by logical rules and presumptions. Researchers observe people in their natural environments using all of their senses as part of a methodical data gathering methodology (Smart, Peggs, & BurrIDGE, 2013). The directness of the observation approach is one of its main advantages. You can learn about people's attitudes, sentiments, and beliefs by listening to what they have to say and seeing how they behave (Cargan, L. 2007). Using the following criteria, the researcher alternated between watching a two-hour session in L200 and L300 classrooms:

Table 4: Guide for observing lessons in class

Criteria		Rating	
Teacher-used lesson language	English Only	L1 Only	L1 and English for limited clarity

The researcher used the aforementioned observation guide to determine if the class tutors' medium of instruction was English solely, English with L1 for limited clarity, or English only. It was noted that the tutors' primary language of instruction was English, with L1 for clarity.

Data collection and analysis

Within a month, the participants self-administered the questionnaire, the interview, and the observation. This tactic gave the chance to address concerns that the respondents had regarding the tool. Additionally, the majority of participants were motivated to reply to the items by the personal administration of the instrument. As previously stated, students self-administered 400 questionnaires, however only 390 were returned. Alongside the qualitative data, questionnaires from the eight English tutors—including the aforementioned 390—were examined.

Both qualitative and quantitative analyses were performed on the information gathered from the questionnaire, in-class observations, and interview schedules. The analysis was conducted theme-by-theme. To find parallels and contrasts, the researcher arranged information from all interviewers or respondents and their responses, including observations made in class. As the results were analysed, the connections and connections among the answers were investigated.

Ethical considerations

Since "one has to consider how the research purposes, contents, methods, reporting and outcomes abide by ethical principles and practices" (p. 51), ethical considerations are present throughout the entire research process and are essential when framing the research design, according to Cohen et al. (2007). Hence ethical considerations are not merely procedural. Therefore, the cost/benefit ratio was taken into consideration when considering the research problem. For the participants, there was virtually little risk. They were requested to make time to complete the survey and take part in the interview.

After weighing the expected benefits of the study (additional understanding about the advantages/significance, the challenges, and impacts of English medium training) against the cost (time to participants), it was concluded that the study was worthwhile as an initial step in the research process. Other

ethical study considerations included decreasing participant risks, informed permission, privacy, anonymity, and confidentiality.

Since each participant was an adult, they were competent enough to make their own well-informed judgments about taking part in the experiment. At every stage of the data collecting process, including answering the questionnaire and taking part in interviews, participants were made aware of the nature and goal of the study, and participation was entirely voluntary. The fact that participation was entirely voluntary and that withdrawal was possible at any moment was explained to the participants. At every stage of the study, they were given the name and contact details of the researcher. I obtained the participating tutors' permission before doing the in-class observation. Measures were taken to protect each participant's privacy and confidentiality during the entire study.

Validity

Using a variety of data collection techniques helped to mitigate the drawbacks of any one strategy and guaranteed the correctness of the information acquired, ensuring the validity of this study (Creswell, 2003; Punch, 2005). As was already noted, the semi-structured interview schedule was developed using observations and questionnaires. Voice recordings of interviews were played back to the interviewees for verification in order to collect qualitative data. The validity of the study's conclusions was increased by the employment of several data collection tools.

Results and Discussion

This section displays the results of the study on student performance. Students' and tutors' results are contrasted and assessed. The overwhelming support from both students and tutors indicates that employing English as a teaching language significantly affects students' academic performance. Students have a favourable attitude toward English as a result, which enhances their professional opportunities, increases their level of skill, and increases their acceptance across the globe. However, because of their limited vocabulary, kids are unable to ask many questions, which leads to their dropping out of school because they can't understand the content being taught. Tables 1-4 provide a summary of the responses from both students and tutors.

Results

Table 5: Responses from tutors regarding how students' performance is affected when English is used as the medium of instruction.

Item	Agree	Uncertain	Disagree
Pupils acquire a favourable attitude toward English.	87.5	12.5	0
It increases students' job opportunities.	100	0	0
It aids in raising pupils' competency levels.	100	0	0
It helps pupils get welcomed around the world.	75	25	0
Students' limited language prevents them from asking numerous inquiries.	50	25	25
Due to their inability to understand the material being taught, pupils end up dropping out of school.	62.5	12.5	25

According to Table 5, when asked if students acquire a favourable attitude toward English, 87.5% of the tutors said "yes," while 12.5% said "no." In this case, the majority of instructors agreed with the statement, and none objected. The findings also showed that using English as a teaching language improves students' employment prospects. In this regard, it is noteworthy that every tutor gave an affirmative response, demonstrating that they all agreed with the statement. Furthermore, the findings imply that every tutor concurred that teaching in English raises students' competency levels. Compared to 25%, 75% of respondents were still unsure.

According to the respondents, learning English helps pupils become accepted around the world. Similarly, 75% of tutors concurred that learning English helps pupils become accepted around the world, but 25% were unsure.

It was also observed that when English is used as the medium of instruction, students' restricted vocabulary hinders them from asking many questions. This was agreed upon by half of the instructors. Nonetheless, 25% disagreed with the assertion and 25% were undecided. Finally, the results also showed that

62.5% of tutors agreed that students' inability to use the English language is the reason they don't do well in school. However, 12.5% were dubious that adopting English genuinely results in school dropouts because children find it difficult to understand the subject, and 25% disagreed. Table 6 displays the responses from the students so that we may compare the tutors' and students' responses.

Table 6: Students' responses on the effects of using English as a medium of instruction on students' performance

Item	Agree	Uncertain	Disagree
Students develop a positive attitude towards English	63.6	8.7	27.2
It enhances career opportunities for Students	73	9.7	17.4
It helps to improve the proficiency level of students	70.2	15.4	14.4
It makes students globally accepted	71.3	11.3	17.4
Students cannot ask many questions due to lack of vocabulary	55.3	11.3	33.4
It leads to school dropout since students cannot grasp the content of what they are taught	42.5	13.8	43.6

Students' reactions to some potential implications of using English as a medium of teaching on students' performance are shown in Table 6. The resounding support for the things on the list suggests that students' performance is significantly impacted by English as a teaching language. Regarding whether or not students acquire a favourable attitude toward English, 63.3% of the students said "yes," 27.2% said "no," and 8.7% said "uncertain."

The findings also showed that using English as a teaching language improves students' employment prospects. Students responded in the affirmative 17.4% of the time, with 9.7% unsure, and 72.8% agreed in this way. Additionally, it was verified that 70.2% of students believed that using English as a medium of instruction raises students' competence levels, compared to 14.4% who disagreed and 15.4% who were unsure.

Additionally, 71.3% of respondents, compared to 17.4%, stated that using English helps pupils become accepted around the world, while 11.3% were unsure. Additionally, it was discovered that when English is utilized as a medium of education, students are unable to ask many questions because of a lack of vocabulary; 55.3% of students agreed with this finding, compared to 33.4% who were unsure. According to the findings, 42.5% of students concurred that if English is not used as the primary language of teaching, pupils may find it difficult to comprehend the material being taught, which could result in school dropout. In contrast, 13.8% were unsure and 43.6% disagreed with this statement. Descriptive statistics were employed to further determine the significance of the variables listed in Tables 5 and 6, respectively.

Table 7: Response from a tutor regarding how pupils' performance is affected when English is used as a medium of teaching.

Item	No.	Mean	Std. Dev.
Pupils get a favourable outlook on English.	8	3.8750	.35355
It improves pupils' career prospects.	8	4.2500	.46291
It aids in raising pupils' competency levels.	8	4.5000	.53452
It helps pupils get welcomed around the world.	8	4.3750	.91613
Students' limited language prevents them from asking numerous inquiries.	8	3.5000	1.19523
Due to their inability to understand the material being taught, pupils end up dropping out of school.	8	3.5000	1.41421

Table 8: Responses from students regarding how employing English as a teaching language affects their performance.

Item	No.	Mean	Std. Dev.
Pupils get a favourable outlook on English.	390	3.54	1.40
It improves students' career prospects.	390	3.86	1.26
It aids in raising pupils' competency levels.	390	3.79	1.12
It helps pupils get welcomed around the world.	390	3.85	1.27
Students' limited language prevents them from asking numerous inquiries.	390	3.33	1.41
Due to their inability to understand the material being taught, pupils end up dropping out of school.	390	3.04	1.53

Table 8 above displays the responses from students about how using English as a teaching language impacts their performance. A mean value of 3.875 and 3.54, which is comparable to the raw data, shows that both tutors and their pupils concur that students acquire a favourable attitude toward English. This shows whether or not pupils grow to have a positive attitude about English. A tutor said in an interview that:

Because they have been using the English language since elementary school and are therefore accustomed to it, there is not much trouble.

Similarly, a student respondent from the interview indicated that:

Since English is a language that everyone in the nation can understand, learning it is beneficial.

The results also showed that using English as a teaching language improves students' employment prospects. In this regard, a mean score of 4.25 for tutors and 3.86 for students indicates that both tutors and their pupils believe that English-medium training improves students' professional prospects.

Consequently, it is hardly shocking when one of the interviewees stated:

Because English is the language of the world and its working instruments, students who learn it will have a better chance of finding employment.

Likewise, a mean score of 4.50 for tutors and 3.79 for students indicates that both tutors and their pupils concur that using English as a teaching language raises students' competence levels.

During the interview, a tutor surely said:

Students' proficiency level is adequate even though there may be variations.

Additionally, it was shown that using English helps kids get accepted around the world. This opinion is supported by a mean score of 3.85 from students and 4.375 from tutors.

A respondent during the interview remarked interestingly that:

We are in competition with the rest of the globe since it is beneficial to use English if I decide to leave this place to continue my education abroad.

The results also showed that pupils' limited vocabulary prevents them from asking numerous questions when English is utilized as the medium of instruction. This is supported by a mean score of 3.50 for teachers and 3.33 for pupils.

A tutor from the interview, surprisingly, remarked that:

Students typically only struggle when it comes to asking or answering questions since they are unable to articulate themselves clearly in English.

According to this tutor, pupils who struggle to communicate well in English frequently don't participate in class. Remarkably, one more respondent stated that:

If your English is poor, you will be unable to communicate in the classroom. When needed, we can use both English and Ghanaian to improve comprehension.

Finally, a mean score of 3.02 from students and 3.50 from tutors suggest that utilizing English as a medium of education results in school dropouts because pupils cannot comprehend the content. Similarly, according to one of the interviewees:

I believe that the primary reason Cape Coast usually withdraws some of its students is because those who struggle with English may not be able to perform well in other disciplines.

Discussion

The findings of the triangulation investigation are discussed in this section. When studying facets of human behaviour, triangulation entails using two or more data collecting and analysis techniques (Cohen et al., 2007, p. 11).

As in the raw data, a mean value of 3.8750 and a value of 3.54 indicate whether or not students grow to have a favourable attitude toward English. This suggests that both teachers and students concur that students engage in this behaviour. It's intriguing, though, because the degree of agreement varies, with tutors having a greater mean value.

This proposes that, for practical reasons, pupils wish to learn in English in educational institutions. Because of the advantages that come with learning English, they would like to do so. This result supports the findings of Rogier (2012), who contends that staff and students have different perspectives on language proficiency and issues related to using English for instruction.

Despite teachers' assertions that students' language proficiency satisfies the requirements for students in an English-medium school, Rogier contends that students do not perceive learning in English as a difficulty. Both teachers and students think that their English language proficiency improves with study, and they typically attribute this to exposure to the language. Although Rogier suggests that instructors and their pupils have different perspectives on English, it is nevertheless true that both groups have favourable opinions of the language. In an interview, an intriguing tutor stated:

Because they have been using the English language since elementary school and are therefore accustomed to it, there is not much trouble.

According to the tutor, despite the difficulties they encounter, students are still at ease speaking English. This is due to tutors' belief that learning English exposes pupils to numerous chances that may be advantageous to them. Likewise, one of the interviewees, a student, stated that:

Learning in English is beneficial since it is the language of communication where everyone is able to understand the nation.

According to the students' viewpoint, they want to learn English since they think it's a language that's growing in popularity globally. As a result, learning English will help them in many ways. This perspective suggests that despite the difficulties they encounter while utilizing English in classrooms, pupils have a positive attitude about the language's use as a teaching tool. In an interview, an intriguing tutor stated:

The results also showed that using English as a teaching language improves students' employment prospects. In this regard, a mean score of 4.2500 for tutors and 3.86 for students indicates that both tutors and their pupils believe that English-medium training improves students' professional prospects. It's also crucial to remember that the disparity in the level of agreement indicates that tutors are more convinced than students are that using English as a teaching language improves students' employment prospects.

It goes without saying that people whose English ability is unquestionable are given several job options. Additionally, learning English gives kids the opportunity to pursue any career. For instance, studying English at Dambai College of Education enables students to pursue careers in nursing and engineering, among other fields.

This result supports the claims made by Karvonen (2017) and Lueg & Lueg (2015) that using English as a teaching language improves employability and provides improved chances for professional advancement. This is due to the fact that jobs are generally available to people whose English proficiency is undeniable. This implies that learning English makes it simple for pupils to find work in any industry. It is comparable to AlBakri's (2017) theories that the English policy is approved for practical reasons because of English's practical use as a lingua franca and its necessity for future employment.

This implies that students can find jobs in any field they choose. Therefore, one of the most important prerequisites for job seekers is proficiency in English. Therefore, it should come as no surprise when an interviewee said:

Because English is the language of the world and its working instruments, students who learn it will have a better chance of finding employment.

It is clear that students can excel in a variety of job fields because people who speak English well have an easier time finding work.

Likewise, a mean score of 4.5000 from tutors and 3.79 from students indicate that both tutors and their pupils concur that using English as a teaching language raises students' competence levels. However, the level of agreement varies, with teachers holding a more powerful opinion than students. This indicates that as students learn English, their speaking abilities improve. The results are consistent with those of Cosgun and Hasirci (2017), who found that receptive language skills development is positively impacted when language is used as a tool and when meaningful exposure to language and task engagement occurs.

By completing different tasks, pupils automatically increase their language skills since they are exposed to understandable input.

This finding, however, contradicts that of Mouhamad (2016), who discovered in his research that students with low levels of English language competency suffer when English is used as a medium of instruction. According to him, pupils find English to be a cognitive burden that impairs their understanding, output, and academic achievement. He recommends that in order to meet students' poor language proficiency, course material, pace, depth, and breadth should be modified. Assessment procedures and language alternation should also be changed.

As a result, he suggests that more indigenous language-medium courses be offered across faculties in order to raise the profile of local languages. According to him, this can be accomplished by acknowledging the value of local languages in assisting students' having lesson in English as a Medium of Instruction courses and by offering more resources for learning the language.

According to Kyeyune (2003), there are theoretical grounds to believe that adopting the mother language as an alternate medium would not always result in a significant improvement, even though it is one possibility for change. This is due to the fact that the issue is more deeply rooted in the prevalent forms of teacher-student communication than it is in language proficiency. He came to the conclusion that rather than supporting students' learning attempts, some of the ways teachers use English can actually make things more difficult. Therefore, it is incumbent upon educators to reconsider how they interact with their pupils in the classroom. On the basis of that, students' proficiency could

be improved by using practical-driven communication techniques in the classroom. Undoubtedly, one of the interview's tutors said:

Despite possible variances, the students' level of competency is sufficient.

According to this tutor, as students study English, their competency keeps getting better. This is a result of their regular usage of English in conversation. Thus, it is accurate to say that using English as a teaching language raises students' competency levels. The rate of improvement is extremely modest, though. For some of them, it takes a long time. This is because people with good proficiency levels who come from senior high schools take a little longer to get better. For people who arrive at institutions with really low skill levels, it takes a long time.

Additionally, the results showed that pupils' global acceptance is improved when they use the English language. A mean score of 3.85 from students and 4.3750 from instructors support this. It's interesting to identify that the difference in mean values indicates that students have a great opinion than their tutors. However, the findings show that students and tutors both think that being able to communicate in English helps pupils gain international reputation. This implies that since English is widely used, students who study it will be able to integrate into society.

This result is consistent with Ebad's (2014) conclusion that English is a better language than regional tongues since the world has shrunk to a small village and English is the primary language used for communication in this global community. He contends that whereas local languages are spoken in specific geographic locations, English is spoken worldwide. Therefore, for worldwide commerce and communication, English should be the language of communication.

It is also in line with AlBakri (2017), who claims that the practical justifications for the acceptance of English as a medium of instruction policy stem from the language's usefulness as a lingua franca. During the interview, one respondent made the following intriguing observation:

It is also in line with AlBakri (2017), who claims that the practical justifications for the acceptance of English as a medium of instruction policy

stem from the language's usefulness as a lingua franca. During the interview, one respondent made the following intriguing observation:

This respondent believes that it is important for pupils to be globally recognized by using the English language. English is becoming more and more popular as a language for business and communication because we live in a multilingual society. Students will therefore be found wanting no matter where they end up.

The results also showed that pupils' limited vocabulary prevents them from asking numerous questions when the English language is employed as the medium of education. This is supported by a mean score of 3.5000 from instructors and a score of 3.33 from students. Notwithstanding the differences between the two beliefs, it is significant that both tutors and their pupils believe that if students learn in English, they will be unable to ask many questions because of a lack of vocabulary. It is clear that a large number of students do not participate in class, not because they lack knowledge but rather because the words, they would use to communicate their thoughts are inadequate.

Their writing also demonstrates this. Ideas are there in one's work, but they are not stated directly. This is in line with Owusu's (2017) assertion that pupils who are becoming bilinguals do not benefit from education in English alone. Students' engagement in class is hampered by the English-only instruction. Owusu also contends that English is a language with a large vocabulary. Technical terminologies are used to express some of these vocabularies. In order to improve pupils' comprehension, their meaning can occasionally only be comprehended in local languages.

The results are also consistent with AlBakri (2017), who claims that students struggle academically, primarily due to their lack of language proficiency. In this regard, he argued that using local languages as a teaching medium would result in a more thorough comprehension of the material and, most likely, improved academic achievement. Surprisingly, one of the interview tutors said that:

Students typically only struggle when it comes to asking or answering questions since they are unable to articulate themselves clearly in English.

According to this tutor, kids who struggle to communicate well in English typically don't participate in class. It's interesting to note that another respondent said:

If your English is poor, you will be unable to communicate in the classroom. For greater comprehension, we can thus blend Ghanaian and English when needed.

This implies that using English as a medium of instruction will prevent some pupils from being able to express themselves in a meaningful way. Due to their limited vocabulary, students are also unable to ask many questions during lectures. Students' inability to participate and ask and answer questions appears to be significantly hampered by their limited language proficiency.

Last but not least, a mean score of 3.50 from tutors and a score of 3.02 from students indicate that using English as a medium of instruction causes school dropout because students are unable to understand the material. The disparity in values, however, indicates that tutors hold a more robust opinion than students that students drop out of school because they are unable to handle the English language in the classroom. It is clear that pupils who struggle with English study frequently leave school.

This is in line with the findings of Agyemang-Prempeh (2018), who found that using English as a medium of instruction causes school dropouts because children are unable to understand the material. In this regard, Agyemang-Prempeh proposes that pupils cease attending school due to their incapacity to learn in English. In the same way, one interviewee stated that:

I believe that the primary reason Cape Coast typically withdraws some of its students is because those who struggle with English may not be able to perform well in other disciplines.

According to this answer, a student's overall performance in other areas is impacted if they struggle with English. Although the results clearly show that students leave school because they are unable to comprehend and assimilate the material that their teachers provide them, it can be argued that there are other factors at play when students leave school. According to this claim, educators should develop tangible teaching and learning pedagogies in order to improve students' comprehension.

Key findings

Students at Dambai College of Education often develop a positive attitude about utilizing English as a medium of instruction, according to a critical review of the study's mean values and raw data. In a similar vein, tutors and their pupils agree that learning English improves students' employment prospects and increases their acceptance around the world. Additionally, research indicates that using English as a teaching language causes school dropouts since not all kids can understand the material. Despite this, it was found that using English raises students' competence levels.

Lastly, the findings imply that students struggle to ask or answer questions when English is utilized as a medium of education due to insufficient vocabulary development. Therefore, it makes sense for tutors to concentrate on helping their pupils develop the knowledge and abilities that will improve their comprehension.

Conclusion

According to the study's findings, students at Dambai College of Education typically grow to have a favourable opinion of the employment of English as a teaching language. Students and tutors agree that learning English improves one's chances for employment and acceptance around the world. Significant obstacles are also highlighted by the report, such as rising dropout rates brought on by students' inability to comprehend the course material and low participation in class discussions as a result of poor vocabulary development. Notwithstanding these difficulties, using English as a teaching language is essential to raising students' skill levels. In order to improve students' learning experiences and academic performance, tutors must concentrate on helping them improve their language proficiency and conceptual comprehension.

Pedagogical implications and recommendations

College of Education tutors should be aware that using English as a teaching language might occasionally hinder rather than help students' learning. In order to help teachers employ language alternation pedagogy more successfully and efficiently, this could be introduced to them. Thus, classroom language alternation could be improved as a useful teaching strategy in education colleges.

Given that English-only instruction reduces student involvement in class, tutors should concentrate on helping their students develop the concepts and abilities that will improve their comprehension rather than concentrating on teaching them solely in English. Because English is a language with a large vocabulary. Some of these vocabulary items are technical in nature, and only local languages can sometimes fully convey their meaning.

It is beneficial for tutors to concentrate on helping their pupils develop the knowledge and abilities that will improve their comprehension. It is suggested that language alternation pedagogy raise English proficiency in Ghanaian educational institutions. Thus, the purpose of the study is to look into the effects of teaching English at Dambai College of Education in the Oti Region of Ghana.

Suggestions for future research

Other questions that ought to be the subject of future language development study surfaced throughout the investigation of the research's questions. First, only Dambai Colleges of Education were included in this study. To include more colleges in Ghana, more study ought to be done. Additionally, more research should be done to determine how students' performance in other subject areas at education colleges is impacted by the English medium of instruction. Finally, more study should be done to compare the opinions of students and teachers on English as a teaching language in educational institutions.

Ethical Statement

The Dambai College of Education's Ethical Research Committee in Ghana examined and authorized this study, which included human subjects. Each participant provided written informed permission prior to study participation. Additionally, the book has been proofread to increase its language clarity and accuracy.

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Conflict of Interest

Regarding the publishing of this work, the authors affirm that they have no conflicts of interest.

Authorship Contribution Statement

Wumbei: Developing the research topic, designing the study, creating the research idea, and writing the manuscript. John Adukpo: Data collection, analysis, formatting, citations, research design, and adherence to ethical research guidelines. Gaaku: Developed the theoretical framework, reviewed pertinent literature, and edited and proofread. Joana Emefa Adansi is in charge of proofreading and editing the work to guarantee its accuracy, coherence, and clarity.

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JOURNAL OF TRANSFORMATIVE EDUCATION AND DEVELOPMENT (JoTED) GUIDELINES FOR AUTHORS

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The JoTED is officially published by Dambai College of Education which is a public tertiary institution located in the city of Dambai, Oti Region of Ghana.

AIMS AND SCOPE

The *Journal of Transformative Education and Development (JoTED)* is a peer reviewed journal that advocates novel scholarly work in transformative education and development. JoTED is aimed at advancing transformative educational practices, theory and policy reforms that lead to better educational development and research outcomes for the larger academic community. JoTED is a global platform that targets scholarly works relative to transformative education, educational development, innovative curriculum design and strategies, policy issues, the role of education in societal transformation and development, and educational reforms that contribute to transformative education and development. It focuses on research and approaches that support life-changing educational opportunities, emphasising the power of education to spark significant social and personal development.

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9. Mathematics and Computer Studies Education
10. Technical, Vocational Education and Training (TVET)
11. Creative Arts
12. Arts and Culture
13. Educational Assessment, Measurement and Evaluation
14. Educational Pedagogy
15. Educational Psychology
16. Physical Education, Health, and Recreation
17. Educational Innovation and Technology
18. Information Management and Communication Studies
19. Educational Leadership, Management, Administration and Governance.
20. Social Justice and Inclusive Education
21. Sustainable Development

INSTRUCTIONS FOR AUTHORS

It is recommended that authors read and adhere to the following instructions regarding the preparation of manuscripts to enable JoTED publish their articles promptly. Manuscripts such as position papers, policy analysis, etc. should be structured based on their specific acceptable standards.

A. Structure of the Manuscript

1. Title page

Writing the title should be guided by the following:

1. The Title: The Title should be concisely written and communicate effectively the key elements of the research. It should not be too broad and technical for the larger audience to grasp the actual content of the research. The Title should be bolded and written in Times New Roman with initial caps of all content words. Use font size 14.
2. Name of Author(s): List the full names of all authors beginning with the first name, middle name(s) (if any) and the surname.
3. Institutional affiliation of Author(s): The institutional affiliation of the author(s) should be indicated. The name of the corresponding author should be identified using asterisk (*).
4. Email address: The email address(es) of all the author(s) should be indicated.

2. Abstract

The abstract should be written using the format below:

- i. Statement of the problem in one or two sentences
- ii. The main or principal objective
- iii. The method used in analysing the data
- iv. The key findings with policy recommendations / implications
- v. The number of words for the abstract should not exceed 300

3. Key words

The key words should be from three (3) to five (5). They should be separated from each other using comma, written in initial caps and in italics.

4. Introduction

The introduction should be clearly written with the background, problem statement indicating clearly the gaps the research aims at addressing, justification/relevance. The introduction should end with the main objective or the hypothesis that the research seeks to achieve. Take note that the introduction should be written in paragraphs, not in sections.

5. Methods

This section should highlight the research approach, design, study area (if applicable), sample and sampling techniques, method of data collection and analysis.

6. Results and discussions

Present and discuss the results of the study based on the research objectives and or hypothesis. The results discussed should highlight the main findings supported with relevant literature and or theory.

7. Conclusion and recommendations

Outline the conclusion of the study, indicating the recommendations / implications of the key findings.

8. Ethics statement

(If the study involves human subjects, this section is mandatory.)

Insert ethics approval and consent to participate here (e.g., The studies involving human participants were reviewed and approved by ... University. The participants provided their written informed consent to participate in this study.)

9. Acknowledgements

Insert acknowledgements here (if any). Note that the acknowledgement should not be placed at the title page or as a footnote. Duly acknowledge all financial support received during the research.

10. Conflict of interest

The authors are mandated to declare any potential conflict of interest.

11. Authorship contribution statement

The authorship contribution statement is need for two or more authors. Follow this outlined format.

Surname: Conceptualization, design, analysis, writing. Surname: Editing/reviewing, supervision. Surname: ...

(Each author must have contributed to at least one aspect of each of these criteria: concept and design, data acquisition, data analysis / interpretation, drafting manuscript, critical revision of manuscript, statistical analysis, securing funding, admin, technical or material support, supervision, final approval.)

12. Funding

Insert funding information (institution and grant number) here (if any)

13. Generative AI statement

Authors who use generative AI and AI-supported technologies should clearly state which AI tool was used and for what purpose in this section. The following example statement is recommended:

“As the author(s) of this work, we used the AI tool (name of AI) for the purpose of (purpose). After using this AI tool, we reviewed and verified the final version of our work. We, as the author(s), take full responsibility for the content of our published work.”

B. Guidelines on Contents**1. Word limit**

The word count of the manuscript should range from 6,000 to 10,000, excluding tables, figures and references.

2. Font size and style

The entire manuscript should be written in Times New Roman with font size 12 and single spaced.

3. Headings and sub-headings**i. *First Level heading***

The first level heading should be initial caps and bolded

ii. *Second level heading*

The second level heading should be in sentence format and bolded

iii. *Third level heading*

The third level heading should be in sentence format and italics

4. Tables and figures

The tables and figures should conform to the 7th edition of APA format. The tables and figures should be numbered using Hindu-Arabic numerals (Table 1, Table 2 ..., Figure 1, Figure 2 ...). The table headings should be in sentence format and placed at the top. The titles of the figures should be in sentence format and placed beneath. The tables and figures should be cited in the text. Tables and figures that are not deemed critical to the work can be placed in appendix.

5. Reporting statistical values in tables

Statistical values should be clearly indicated in tables using two (2) decimal places for descriptive statistics and three (3) decimal places for inferential statistics. For inferential statistics (regression analysis, ANOVA, t-test, Chi square, ...), only coefficients or marginal effects and standard deviation or standard error or p-values should be reported in the tables.

6. Citation and references

Refrain from the use of “grey literature” to scholarly referred publications.

JoTED uses *American Psychological Association [APA] (7th edition)* (see <https://apastyle.apa.org/instructional-aids/reference-guide.pdf>) style for all in-text citations and at the list of references.

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When authors submit their articles or academic work to JoTED for publication, they automatically relinquish the copyright to the journal. This facilitates JoTED's ability to publish the material and enhance its visibility within the academic community.

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D. Ethical Responsibilities

Authors should ensure that:

1. their articles are original, not published or submitted to any other journal.
2. materials obtained from published or unpublished works are duly cited.
3. their articles do not violate the privacy and intellectual property rights of others.
4. all contributing authors to the paper are accurately represented in the authorship.

E. Plagiarism

The JoTED does not accept any plagiarised work. When plagiarism is detected, the manuscript will be outrightly rejected. The threshold for an acceptable similarity index for a plagiarism test of a manuscript for the journal is 18% or less.

Use of Large Language Models and generative AI tools in writing your submission

The JoTED acknowledges the importance of Large Language Models (e.g. ChatGPT) and Generative AI as tools that can assist authors to conceptualise and finetune their write-up. Therefore, authors are advised to refrain from over dependence and direct lifting of materials

from these Large Language Models (e.g. ChatGPT) and Generative AI in writing their manuscript.

F. Corrections, Expressions of Concern, and Retractions

Necessary corrections and concerns can be made by author(s) before the final manuscript is published. Author(s) will have access to reviewed manuscripts and give approval of the correctness of content of the final version of manuscript before publication. After publication, author(s) cannot request to make corrections if errors are found. Decisions would be taken by editors and appropriate retractions made if necessary for the maintenance of integrity of the scholarly record.

G. Appeals and Complain

We welcome genuine appeals and complaints regarding editorial decisions and peer review processes. However, submitting formal letters to the chief editor requires providing substantial evidence.

F. Article Publication Charges

As open access journal, the processing fees for an accepted article by JoTED is \$100.00 including VAT.

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QUERIES

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