

THE IMPLEMENTATION OF INQUIRY-BASED
APPROACH IN TEACHING GEOGRAPHY AMONG
SECONDARY SCHOOLS IN TANZANIA

BY

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ABSTRACT

The use of active approaches of teaching such as Inquiry Based Approach (IBA) are important in developing students' various capabilities in solving not only academic problems but also life problems. However, before those approaches are emphasized by the ministry of education or the educational policy, first they need to realize teachers' current conceptions of the approach. This is because training them cannot guarantee that they implement them in classes. This research sought to explore geography teachers' perceived understanding of Inquiry-Based Approach (IBA) for teaching and learning at the selected Secondary Schools in Morogoro Municipal, Tanzania. The research was informed by constructivism learning theories, Stripling Model of Inquiry, Bloom Taxonomy framework and Bandura theory of cognitive learning. There were four key research questions: (i) How geography teachers conceptualize the meaning of IBA; (ii) How geography teachers apply IBA in teaching; (iii) What is the belief of geography teachers on teaching geography subject and IBA; (iv) What are the challenges for effective implementation of IBA. The research paradigm used was a qualitative, case study design involving eleven geography teachers selected purposefully from five secondary schools. The data collection methods were face-to-face in-depth interviews, classroom observations and lesson plans analysis. Data were analysed thematically. The findings showed that geography teachers hold multiple conceptual meanings of IBA; the majority understood it generally as a questions-driven approach but were unclear of the role and position of those questions in the instruction process. It was evident from the findings that teachers were good at choosing and planning for active teaching methods, but the majority of their lesson plans lacked IBA features, such as lesson objectives and choice of challenging tasks that can develop students' higher order thinking skills. It was also evident from the findings in the classrooms that most teachers were seen to focus on helping students to remember what they learned in previous lesson; they used a mixture of learner-centred and participatory methods, dominated with closed-ended questions and emphasis of feedback. In short, there was some sort of similarity in the patterns of classroom practices and the way teachers conceptualize the meaning of IBA. The findings also indicate geography teachers hold a strong belief about teaching geography and IBA. Although they highlight challenges, they appear to limit the effective implementation of IBA such as teaching and learning facilities, time, language and negative perception of other education stakeholders towards IBA. Therefore, by highlighting the latent misconception of IBA that teachers have and the necessity of IBA in developing Tanzanian students' skills needed for this 21st century, this research can help teachers' trainers and policy and curriculum developers to develop ways to intervene for practical improvement.

خلاصة البحث

يعد استخدام المناهج النشطة في التدريس مثل IBA مهماً جداً في تطوير القدرات المختلفة للطلاب في حل المشاكل الأكاديمية ومشاكل الحياة. ومع ذلك، هنالك حاجة إلى إدراك المفاهيم الحالية للمعلمين لهذا النهج في البداية قبل التأكيد على هذه النهج من قبل وزارة التربية والتعليم أو السياسة التعليمية. وذلك لأن تدريبهم فقط لا يضمن تطبيقه في الفصول الدراسية. سعى هذا البحث إلى استكشاف الفهم المدرك لمدرسي الجغرافيا للنهج القائم على الاستقصاء (IBA) للتدريس والتعليم في المدارس الثانوية المختارة في بلدية موروجورو (Morogoro Municipal) بتنزانيا (Tanzania). استند البحث إلى نظريات التعلم البنائية، ونموذج الاستقصاء (Stripling Model of Inquiry)، وإطار تصنيف بلوم (Bloom Taxonomy) (framework)، ونظرية باندورا للتعلم المعرفي (Bandura theory of cognitive learning). كانت هناك أربعة أسئلة بحثية رئيسية وهي: (1) كيف تصور معلمو الجغرافيا معنى ال IBA؛ (2) كيف طُبِّق معلمو الجغرافيا ال IBA في التدريس؛ (3) ما هو رأي معلمي الجغرافيا في تدريس مادة الجغرافيا و ال IBA؛ (4) ما هي التحديات التي تواجه التنفيذ الفعال لل IBA. كان نموذج البحث المستخدم مصمماً نوعياً لدراسة الحالة وشمل أحد عشر معلماً في مادة الجغرافيا، تم اختيارهم عن عمد من خمس مدارس ثانوية. كانت طرق جمع البيانات مقابلات متعمقة وجهاً لوجه وملاحظات الصف وتحليل خطط الدرس. أظهرت النتائج أن معلمي الجغرافيا يحملون معاني مفاهيمية متعددة لل IBA. الأغلبية فهمت ال IBA بشكل عام على أنه نهج قائم على الأسئلة ولكن لم يتضح دور هذه الأسئلة وموقعها في عملية التدريس. كان من الواضح من النتائج أن المعلمين كانوا جيدين في اختيار وتخطيط طرق التدريس النشطة ولكن غالبية خطط الدروس تفتقر إلى ميزات ال IBA، مثل أهداف الدرس واختيار المهام الصعبة التي يمكن أن تطور مهارات التفكير العليا للطلاب. كما اتضح من النتائج التي تم التوصل إليها في الفصول الدراسية أن معظم المدرسين يركزون على مساعدة الطلاب على تذكر ما تعلموه في الدرس السابق؛ حيث استخدموا مزيجاً من الأساليب التي تتمحور حول المتعلم والطرق التشاركية، ويهيمن عليها الأسئلة المغلقة والتركيز على التغذية الراجعة. باختصار، كان هناك نوع من التشابه في أنماط الممارسات الصفية والطريقة التي تصور بها المعلمون معنى ال IBA. تشير النتائج أيضاً إلى أن معلمي الجغرافيا لديهم اقتناع بشأن تدريس الجغرافيا وال IBA. وعلى الرغم من أنها تسلط الضوء على التحديات، يبدو أنها تحد من التطبيق الفعال لل IBA مثل ممارسات التعليم والتعلم، والوقت واللغة والتصور السلبي لأصحاب المصلحة الآخرين في التعليم تجاه ال IBA. لذلك، من خلال تسليط الضوء على المفهوم الخاطيء الكامن لل IBA الذي يمتلكه المعلمون وضرورة استخدام ال IBA في تطوير مهارات الطلاب التنزانيين اللازمة لهذا القرن الحادي والعشرين، يمكن لهذا البحث مساعدة المدرسين والمطورين في مجال السياسات والمناهج الدراسية على تطوير طرق للتدخل من أجل التحسين العملي.

APPROVAL PAGE

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DECLARATION

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LIST OF ABBREVIATIONS

DU	Discourse Unit
IBA	Inquiry-Based Approach
I	Informant
IQ	Interview Question
R	Researcher
RQ	Research Question

CHAPTER ONE

INTRODUCTION

The topic of this study is the implementation of an Inquiry Based Approach (IBA) as perceived by geography teachers from selected secondary schools in Morogoro, Tanzania. Conducting this study was important because it helped the researcher in understanding the extent to which geography teachers are aware and applying the active classroom pedagogy, such as the inquiry-based approach. This, in turn, provides insight for actions and decisions in the area of teachers training, curriculum review and teachers' self-reflection in teaching students. This chapter introduces the reader to the study's essential building blocks. It covers the background of the study, the problem statement, the research objectives and questions, the study frameworks (theoretical and conceptual), significance, scope and limitations, assumptions, nature and significance of the study, delimitation and definition of key terms. In short, the content of this chapter establishes the reader's initial understanding of the study

1.1 BACKGROUND OF THE STUDY

In recent years there has been a new call worldwide to improve teaching and learning processes. The call is geared to produce students with the appropriate skills relevant with the needs and demands of 21st century (Abdulmajid et al., 2017). Memorization of facts and information is considered less important because everyday facts continue to change and information is easily accessible at the students' fingertips. Skills that enhance students' ability to think critically, examine problems, gather information, collaboration, communication, curiosity, creativity, and innovation are highly emphasized (Ngaewkoodrua & Yuenyong, 2018).

Following this call, researchers have long recommended that, among others things, curriculum and pedagogies must be reformed to help all students achieve the outcomes required for effective contributions in the work place and citizenship (Waniek & Nae, 2017).

Active pedagogy such as the inquiry-based approach (IBA) of teaching and learning has been acknowledged to promote learners' engagement, flexible thinking, collaborative learning, interactive learning, transfer of learning and capacity for addressing complex issues (Akhter & Fatima, 2016; Athuman, 2017; Hakala, 2017; Makar & Fielding-Wells, 2018). Unlike the traditional approach, inquiry-based learning can enhance the natural curiosity of learners which encourages asking questions (Athuman, 2017). IBA has received widespread support by educators not only in Tanzania but worldwide. It is an active pedagogy which begins with posing a question to students, or students themselves designing a question. Teachers can first pose a question to students instead of giving them the already established facts. At this level, a teacher is a guide and facilitator more than an instructor. The term "inquiry-based approach" according to Athuman (2017) and Dole, Bloom, & Kowalske (2016) has been used interchangeably with problem-solving approaches, project-based teaching, research-based teaching, discovery learning, or inductive teaching. It is self-directed instruction and therefore students are responsible for their own learning. Students who have been through the traditional education system do not like to ask questions, they are always silent in class. IBA goes beyond asking questions in the sense that it enables students to make sense of what they are learning. It builds students' interest and curiosity to learn, and therefore deepens their understanding of the topic because they will have to engage in the series of activities.

Those activities include researching, analysing information, make decisions and justification, share their findings and arrive at a conclusion.

When it comes to the teaching and learning of Geography, many involved in geographical education speculated about the future of the subject at the turn of the twenty-first century (Bearman et al., 2016; Dolan et al., 2016; Guzman et al., 2017; Pauw, 2015). They claim that the value of geography education can be realized if the pedagogical approach of teaching and learning the geographical knowledge to students meets the required standards. The concern is the fact that geography education has the potential to develop creative thinking and reflective minds, but the way it is taught or learnt is the source of the problem (Bodzin et al., 2016; Sumari et al., 2017). To put more emphasis on this concern, previous studies on classroom learning have concluded that students tend to value the subjects that spark their curiosity and encourage them to explore (Lee & Hannafin, 2016). Geography is in a prime position to harness this energy. This can be justified by the fact that geography motivates students' curiosity because it involves the study of nature and the formation of different physical features found on the earth's surface. Another reason is that this subject is interdisciplinary in nature (Watson, 2008). The interdisciplinary nature of geography enables students to integrate knowledge from other subjects, such as mathematics and biology, hence making its learning objectives consistent with other science subjects. Otero and Torres (2017) assert that there has been little internalization of geography teachings into the lives of the students compared to when they are in a school context. Memorization of facts and abstract knowledge is not enough to comprehend the beauty of geography as a subject. As noted by Hashim (2017) and Muhammad (2018), teachers' pedagogy together with other factors, such

as students' interest and parental involvement, highly impact the transmission of geography knowledge, therefore they should be given urgent attention.

The spirit of IBA is inquiring, the aspect which is alive in any learner who wants to find out about something. Geography inquiry in this case empowers students to question why the world is the way it is and how people relate to their physical environment (Kleeman, 2015). Teaching and learning geography through inquiry does not mean just finding out answers to questions. In order to develop geographical understanding it is important for students to make sense of the information they encounter by making connections of all types, between their existing understanding and new knowledge and between different pieces of information (Fabiana, 2015). Making sense is the most important aspect of learning in any discipline. It involves being able to reason and to develop and evaluate arguments. It requires teachers to teach students how to respond to questions geographically, plan an inquiry in terms of gathering information through fieldwork, analyze and interpret information, and arrive at a conclusion based on what they have learnt (Williams, Tooth, & Gibson, 2017). Teachers guide students to do practical activities (map work, exploratory, etc.) to create interactive classroom environments where students demonstrate investigative tasks together. These activities aim to help student use geographical skills, concepts and perspectives, such as using maps to identify spatial relationship of phenomena, and use geographical variables to analyze local and global issues (Xiang & Liu, 2017).

1.1.1 Curriculum Reform in Tanzania with Constructivism Paradigm

In order to keep up with the demands of the 21st century, in 2010 Tanzania decided to shift its secondary school curriculum from content based to competence based. The 2010 competence-based curriculum and the education and training policy of 2014

recommend that the teaching and learning of the 21st century should be relevant with the students' needs.

The shift from content to competence-based involved some pedagogical changes in the curriculum in incorporating outcome-based learning and constructivist philosophies rather than a theoretical understanding of concepts as it was in the traditional content-based curriculum (Athuman, 2017). The enhancement of creativity, research, analysis and the evaluation skills of students was the major area of concern for the improvements. The 2010 curriculum framework in Tanzania focused on active instructional approaches. According to Ministry of Education and Vocational Training in Tanzania (MoEVT), (2013), the role of teachers was stated as follows:

The teacher shall become facilitator, motivator and a promoter of learning during the classroom interactions. Teachers shall be required to plan and design relevant tasks that will let students' question; critically think; form new ideas; create artefacts and therefore bring sense in the learning process (MoEVT, 2013, p. 29)

The national Educational Policy on the other hand urges all teachers from all educational levels to implement the active approaches that prioritise interactive methods such as inquiry, debates, problem solving, presentation, projects, laboratory work, and class group discussions during teaching and learning (MoEVT, 2014). The Ministry of Educational and Vocational Training in Tanzania, through its teachers training centers, was expected to play a central role in establishing initiatives for empowering student-teachers and in-service teachers about those active approaches to teaching and learning. For example, they were expected to review programmes so as to emphasize learner-centered pedagogy as an approach to teaching and learning, then include an introductory section of each syllabus to emphasize the necessity for

student-teachers to develop competence in applying learner-centered pedagogy during teaching (Tarmo, 2017).

An extract from a Geography pedagogy syllabus illustrates this:

Student-teacher should have the ability to apply learner-centered approaches, strategies and techniques in the teaching and learning of Geography to learners including those with special needs. (MoEVT, 2017, p.11)

Student-teachers are required to familiarize themselves with active teaching and learning approaches as they prepare to teach geography in secondary schools. To ensure that all student-teachers from different training centers in Tanzania are abiding by the active pedagogy knowledge, it has been included in their teaching practice field assessments (Namamba, 2017).

1.1.2 The Education System in Tanzania and Teacher Training

In Tanzania, the structure of the formal education and training system constitutes two years for pre-primary, seven years for primary education, four years for junior secondary education, two years for senior secondary education and at least three years of tertiary education. Specifically, the education system has three levels, Basic, Secondary and Tertiary levels. The relevant data for the scope of this study is that, the total number of secondary schools was 4,796 and 4,884 in 2017 and 2018 respectively. Government Secondary schools counted 3,604 and 3,636 secondary schools in 2017 and 2018 respectively. Private schools were 1,192 in 2017 and 1,248 in 2018. The overall percentage of Private secondary schools stands at 25.6% while Government schools constitute 74.4 % (MoEVT, 2019).

Tertiary levels constitute Teachers training colleges, Polytechnic Institutions and Universities. All Colleges and Polytechnic Institutions in the Country are registered and regulated by National Council for Technical Education (NACTE), while Universities are registered and regulated by Tanzania Commission for Universities (TCU). All these bodies are under the Ministry of Education and Vocational Training (MoEVT). MoEVT has the legal mandate for policy formulation, coordination, monitoring, setting standards, quality assurance and quality control of the whole education system. It is also responsible for training, recruiting, deploying teachers in schools across the country. For example in the year 2016, 17 and 18 consecutively there were an overall total number of teachers in the country equated to (108,596),(110,163), (102,982) respectively who graduated (MoEVT,2019)

Along with training and producing teachers from its Colleges, MoEVT has, for many years, strived to conduct in-service teacher professional development in order to have the teachers aligned to the emerging changes in school curricula and advances in science and technology. Teachers are trained either in teacher education colleges or higher education institutions. Teacher education colleges train teachers at the levels of certificate and diploma, while higher education institutions, including universities and university colleges, train teachers at bachelor's degree level and beyond. Teachers from both paths are employed to work in schools and colleges where continuing professional development is required for enhancing their knowledge, skills, and competences. Teacher professional development programmes through workshops, seminars, conferences, and upgrading teachers' qualifications are the most popular forms of professional development in Tanzania. For example, in 2017 there was training for 15,400 in-service teachers from 35 government teachers colleges (Mpango, 2019)

In addition to formal education in the country, there is non-formal education for adult people who lost the opportunity to get a formal education. Kiswahili is the language of instruction in primary schools and English is taught as a compulsory subject in all classes. The private primary schools use English as medium of instruction famous known as "English Academy." In Secondary Education, English is used as a language of instruction except for Swahili subject; at the end of each cycle the students write examinations which are national standardized examinations before jump to the next level. Similarly, English is the language of instruction at Colleges, higher learning and polytechnic institutions.

1.1.3 IBA Application in Teaching Geography Subject and Study Rationale

While learning of geography requires students to achieve an understanding of geographical concepts and ideas, teaching of geography requires teachers to have an understanding of geographical pedagogical and content knowledge (Jo & Witham, 2014). It is also about developing the intellectual capabilities which young people need to understand and process geographical information and progress in their learning. Researchers have acknowledged that the inquiry-based approach in teaching subjects that makes students curious about their physical environment (in this case geography) helps them develop practical skills and ability to apply knowledge into practice (Bush, Sieber, Seiler, & Chandler, 2016; Seow, 2016; Dolan, Waldron, Pike, & Greenwood, 2016; Holder, Scherer, & Herbert, 2017).

The geographical inquiry process is a great tool to structure investigation of geographical phenomenal at a range of pedagogical scales, from a short classroom activity through to an entire subject objective (Roberts, 2010). The IBA has been part of the pedagogy in not only the 2010 curriculum framework, but also the syllabus of

the subject of geography for teachers by as part of the implementation of that curriculum. It is expected that geography teachers especially are aware of this approach. Studies have been conducted in Tanzania to assess the implementation of the 2010 curriculum. For example Mtitu (2014) researched the implementation of learner-centred approaches among secondary schools teachers teaching science and found that teachers' insufficient understandings of the nature of science and the use of an unfamiliar language for instruction are the limiting factors for student engagement in critical thinking skills. Another study by Tambwe (2017) aimed at finding out the implementation of competence- based education and training among Tanzania technical institutions found that one of the impediments for implementation is teachers' poor understanding of competence-based education and training concepts. Although these studies have shown the inadequacy of teachers in terms of instructional knowledge, their findings are inconclusive because they have not investigated in detail how specific pedagogical practices of teachers relate to their perceived understanding of the approach. The focus of this study was to investigate such relationship and how geography teachers understand and apply IBA.

1.2 STATEMENT OF THE PROBLEM

The concern of the Tanzanian revised curriculum of 2010 was the demand to produce learners who are creative thinkers, analyzers of information, researchers and problem solvers (MoEVT, 2011). In order to realize that concern, several initiatives have been taken by the Ministry of Education in Tanzania, including conducting workshops and trainings for teachers about the implementation of the new curriculum and the use of active teaching and learning approaches (Mtitu 2014; Namamba 2017). In geography, for example, teachers are trained to make students problems solvers and researchers of

environmental issues. The Ministry of Education in Tanzania stated their initiative to train teachers to implement the 2010 curriculum, and in the 2015/16 fiscal year 13,600 teachers were trained and 15,400 teachers in 2016/17 (Mpango, 2019). However, recently there is reported evidence that some teachers are reluctant to apply the active instructions in schools.

Several reasons has been raised out to be causing such reluctance including poor schools supporting systems with regard to infrastructures, teachers are not competent enough to use active teaching methods in classes, teachers have low job motivation and inadequate schools inspection (Makunja, 2015, 2016 & Tambwe, 2017).

When teachers are reluctant to give students their due right in terms of teaching them with the relent approach then, the possible consequences in a long run could be;

- i. Students produced will be deprived of relevant skills that have been targeted by new curriculum such as Critical and Creative thinking, Communication, and research skills etc.
- ii. Students produced will not be able to compete in the job market because they are deprived of the relevant competences as compared to those who have been taught by the active approaches

The review indicated few studies have been done in Tanzania to investigate the implementation the active teaching. In addition, there is a limited number of studies which have been done in Tanzania to explore IBA, qualitatively from geography teachers' perspectives, as one of the recommended active teaching/learning approaches. Exploring how geography teachers perceive the IBA in the teaching of geography with regard to their understanding and practice was the initial step to research on the issue and to bridge the knowledge gap in this area.