GEOGRAPHY TEACHERS' PERCEIVED CHALLENGES ON THE IMPLEMENTATION OF INQUIRY-BASED APPROACH (IBA): A CASE STUDY

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ABSTRACT

Teachers as primary implementers of curriculum and pedagogical review experience various challenges. This paper highlights the perceived challenges experienced by geography teachers in implementing Inquiry-Based Approach (IBA) for teaching at secondary schools in Morogoro, Tanzania. Besides, coping strategies are also presented as a significant element of dynamic teaching. Hence, this study aims to explore the challenges of Implementing IBA from a geography teacher's perspective. The researcher adopted case study research design and the study was conducted on eleven geography teachers from four Secondary schools at Morogoro Municipality, Tanzania. The findings indicated dynamic teaching or situational teaching is what stabilizes IBA. For example, the informants understood that challenges are inevitable as part of any implementation process and therefore, they should adjust or devise ways to overcome some of those challenges. Therefore, it is recommended in this study for the Ministry of Education and Vocational Training (MOEVT) in the country to supply adequate training and facilities in schools. Similarly, instilling a dynamic spirit in teachers is as vital in enhancing IBA

Keywords: Implementation Challenges, Teaching, Inquiry-based Approach, Secondary schools, Geography teachers.

INTRODUCTION

Active pedagogy such as the inquiry-based approach (IBA) of teaching and learning has been acknowledged worldwide 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). This approach 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. This pedagogy emerged from constructivism theory that, individuals are able to learn by investigating scenarios and problems, and through social experiences(Buchanan et al., 2016). With the constructivism thoughts, teachers encourage their students to conduct investigations that would satisfy their curiosity, help them broaden their knowledge base and develop their skills and mental frames (Voet & De Wever, 2017). It also builds students'

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interest and curiosity to learn, and therefore, deepens their understanding of the topic because they will have to engage in the series of activities such as researching, analysing information, make decisions and justification, share their findings and arrive at a conclusion.

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). 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).

Despite the recognized benefits of IBA, many studies have given more attention on the effectiveness of IBA in enhancing students learning (Emmons & Hardin, 2014; Chairam, Klahan, & Coll, 2015;Petterson, 2016;Caswell & LaBrie, 2017; Athuman, 2017; Potvin et al., 2017; Fraser, 2017; Ngaewkoodrua & Yuenyong, 2018;Aulia et al., 2018;Ramnarain & Hlatswayo, 2018).Yet less focus has been given to how teachers implement IBA in schools. In Tanzania , for example, geography 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 2020/21 (Mpango, 2016). However, there is reported evidence that some teachers are reluctant to apply the active instructions in schools (Makunja, 2015, 2016 & Tambwe, 2017). The review indicated few studies have been done in Tanzania to investigate the implementation of 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, being one of the recommended active teaching for 21st century. This study was considered as another step to bridge the research and knowledge gap in finding out why some teachers are reluctant to apply active teaching.

Study Purpose and Research Questions

The purpose of this qualitative study was to explore the challenges of implementing IBA from geography's teacher's perspective in Morogoro, Tanzania. Thereby, informants shared their experience on using IBA approach for teaching as well as their coping strategies. Hence, the primary research questions addressed were: (1) What are the challenges of Implementing IBA? (2) How does geography teachers cope with the challenges they face on implementing IBA? These questions were also used to guide the data collection process and analysis.

METHODS

This study applied an explorative qualitative design to investigate the perceived conceptual understanding of geography teachers on IBA, its use for teaching at secondary schools in Morogoro, Tanzania. This design was chosen by the researcher because it is suitable to fully

explore the underlying themes that have been generated as a result of an in-depth interview with the informants. Another conviction that this design can give is the possibility of reaching at saturation state of extracting information from the informants (Ahmad, 2017). The research study was conducted in Morogoro, Tanzania involving eleven selected secondary school geography teachers. The informants were selected purposefully based on their specialization as secondary school geography teachers. Data were collected using semi-structured interview, then, thematic analysis was used to analyse the data.

FINDINGS AND DISCUSSION

After transcribing and generating themes according to the research questions and interview questions, the researcher came up with a total of four (4) categories and nine (9) key themes: The expansion of the emerging themes is summarized in figure 1 below:

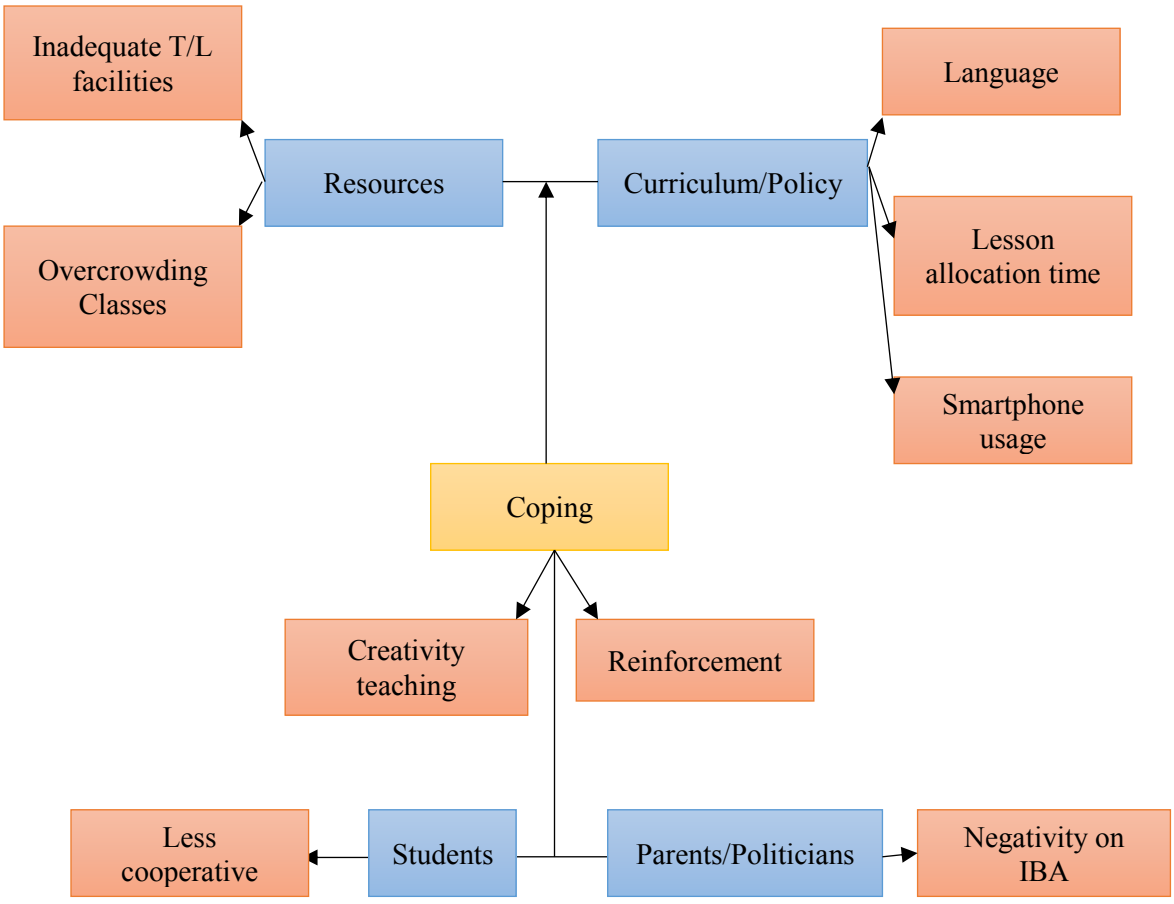

Figure 1: The Expansion of Emerging Themes

Inadequate Teaching and Learning Facilities

The first theme "Inadequate teaching and learning facilities" represents the resource challenges that the informants consider as hindrances to the effective implementation of IBA in their schools. This concept is explained by previous research such as Pretorius et al.(2016) and Tambwe (2017) that teachers in most developing countries are faced with lack of computers and laboratory equipment to facilitate the learner-centred teaching. The constructivism perspective requires that the inquiry-based class is equipped with relevant teaching and learning resources (contextual factors) so that students can actively participate in self-learning and exploring materials (Strom et al., 2018). However, in this study, the

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resources of concern were books, internet access, survey and weather instruments and were seen to hinder the implementation of IBA. For example, one informant stated:

"Lack of books because sometimes you tell them to go maybe just give them the highlight maybe next period we are going to learn about 1, 2, 3. So you have to go there and search because they don't have in their mind so they have to go there and search, so once they go to the school library there is no books and you can tell them to go to the internet because they don't have money"(Inf 1).

This informant stressed the lack of books and problems with internet access due to lack of money. As for another informant, the resource challenge for him is not lack of books but inadequate number of books for the number of students;

"There are a fewer number of books, so it is difficult sometimes for the students to find materials. We have a library, but the number of books are few compared to the number of students" (. Inf 2)

In contrast, another informant apart from mentioning a lacking books as one of the challenges; she stressed geography teaching aids such as survey and weather instrumentation;

"There is a shortage of resources, like books; there is no equipment of geography subject in my school. Like survey equipment, and instruments which are used to record weather, sunshine or humidity, there is no equipment. Books are available, there at library, there are many books of geography" (Inf4).

She seems to find it difficult to engage students in class because there are no actual demonstrations of geography equipment that students can observe and practice.

Inadequate Lesson Time

The second theme "Inadequate lesson Time" indicated to be another hindrance for the effective implementation of IBA. This has been explained as the time allocated for a geography subject lesson is not enough for the teacher to accomplish all the stages of IBA. This interpretation has been taken from the following comments by the informants:

a. "You have provided them with questions, each one wants to share. So, you probably you have a period of 40-80 min it is difficult for them all to share what they have (Inf2).

b. "They have a lot of work to do and every teacher wants to finish his/her topic. So sometimes to make it successful, the timetable of this school is compact, they start at 1:20am-5:00pm therefore the students have no time to sit in their groups to discuss tasks" (Inf 9).

c. "Extracurricular are very normal but usually done e.g., once after lunch they have to make cleanness, have to go for sport, there is other activities, they have to wash up their clothes, during night they have preparation and during this time they don't allow people to make discussion. We have night prep and morning prep, so during this all time they don't make discussion" (Inf7)

In summary, Inf 2 views the allocated time period of the lesson is not sufficient for all students to share their views while Inf 9 criticized the school's timetable as it is full of lessons in a way that students are deprived of time for discussion. A similar concern was presented by Inf 7 who taught in a boarding school and considered the extra curriculum activities contained in her school's general timetable to reduce the time for students to engage in learning tasks.

She believed that, if some extra curriculum activities are omitted from the school's general timetable, then, students could have more time to discuss and research more learning materials from either books or the internet. This theme has been reported by previous researchers to have hindered the effective implementation of IBA in mathematics and sciences inquiry classrooms (Abraha & Tarekegne, 2018; Maass et al., 2017).

Students denied access to smartphone usage.

The third theme "students denied access to smartphone usage" has been used to explain related factors that the informants considered as another hindrance for the effective implementation of IBA in schools. For example, two informants mentioned the Tanzania education policy to have forbidden students in all secondary schools not to use phone or smart phone in schools. think this denies students access to the varieties of learning resources that are available on the internet via smart phones. Here one informant said;

"Students are not allowed to use mobile phones in schools. They mostly misuse the mobile phones, instead of searching for materials some may use it for some music sites or other things and not even go to educational sites" (DU 24, Inf6*).*

Although the informant blame the Ministry's secular for not allowing students to use mobile phones in schools, she knew why the policy did so. The second informant presented;

"Students are not allowed to come to school with phones, throughout the whole country. From standard one to form six students are not allowed to come to school with the phone; maybe when they are at home". (DU 57, Inf 10)

He seemed to understand that students are not allowed to bring in smart phone to school but they can still use them at home and benefit from the assigned tasks from school. While this notion of students using smart phones in Tanzania considered as a threat, other parts of the world consider it as an opportunity where students can benefit from it academically by accessing learning materials and information(Buchanan et al., 2016; Roux & Nagel, 2018). Similarly teachers can scaffold their inquiry teaching by applying instructional technology such as smartphones (Rundgren, 2018).

Little cooperation from students

The theme describes conduct from students as explained by the interviewed geography teachers considering them as impediments for the effective implementation of IBA in class. The theme has been pointed out by other researchers as sometimes happening with young students who find it hard to use the skills and processes associated with inquiry instruction, because they have been used to the traditional methods (Smith, 2015;Kienzler & Fontanesi, 2017). Thus, this concept reminds us that students have their roles in making the realization of this approach. Their commitment and willingness to participate in the learning tasks must be taken into consideration as part of preparation when implementing new initiatives like IBA(Atmoko & Hanurawan,2017;Heindl, 2019). In this study, the informants presented varied view with regard to the way students contributes to ineffective implementation of IBA as follows;

"…some students are poor in participating or in finding solution to the questions.so they do not participate fully coz they rely on other students to finish the work". (Inf 3)

This informant considers that students reluctant to participate in doing the assigned activities rendered the approach unsuccessful. Another insight by informant 5 is that students seem not to be ready for this approach probably because they are not familiar with learner-centered approaches such as IBA as they are more used to teacher-centered ones. He remarks;

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"… some students who are not ready few about this approach, I think due to the background of the old method which was teacher self -centred so we are in transition, but I think they are coping very smart compared to the number of those who are not abiding with them" (Inf5)

Unlike those two informants, others such as 8, 4 and 9, noted students' lack of motivation as part of the challenge for the effective implementation of IBA. This approach requires students to be active, to do their tasks on time as well as prioritizing their learning schedule. In contrast, one informant mentioned lack of cooperation among students themselves as another challenge she experiences in applying IBA. She commented;

"…you may distribute questions to the students, but some of the students may not be cooperate with others to solve the questions, so you may find few of them are prepared those works and few of them are able to present them" (Inf7)

Her view seems to contradict the SMI perspective that the approach itself ideally creates a cooperative learning environment in the class (McElvain & Smith, 2016). Thus, the researcher could attribute this poor classroom management as part of the teacher initiative to create such context in the class.

Language

In implementing IBA, communication plays a major role. The teaching process for example will demand students to express themselves verbally and to present the findings or solutions for the given questions (Atmoko & Hanurawan, 2017; Nasution, 2018). In Tanzania, all secondary schools use English language as a medium of instruction for teaching geography subject. The theme describes the comments presented by four of the eleven interviewed geography teachers regarding the barriers they encounter in class on applying IBA. One informant remarked;

"…in geo we have to use English as a communication media, so sometimes when you tell them ok, so what do you understand by this ok, or can you please express yourself, they say sorry can I express in Swahili, I say no this is geography not Swahili so you have to explain it in English. some students may know that thing but feeling incompetent in language they cannot like contribute as much as may be expected" (Inf1).

She recognizes that students have something to share and willing to participate but because they cannot speak English language they are not allowed to talk. English is the media of instruction in a geography subject class, but students insist on using Swahili. Another informant presented the language issue by showing some exceptions among different levels of students as she said;

"… some students they don't talk, because they don't know the lesson. But form two they participate, form three and four this method is good. Only form one. Reason behind is, they are poor in English and other students they feel shame to answer questions, to talk" (Inf 4)

For this informant, form one students feel shame to talk as they feel their English is poor. However, he indicated the upper-class students do not express such a challenge. A different opinion was posed by informant 6 that goes further to the root cause of the problem in general as she remarked;

"…we have language problems. most of our students are coming from schools which were used to be taught in Swahili so having students to stand up and defend or explain things in English is a problem" (Inf6)

For her the challenge of students showing poor understanding of the English language is because of their background when they were at primary schools. In Tanzania all the public primary schools use Swahili as the instruction language. It is only when those students come to secondary schools they are exposed to English language as a medium for learning all subjects. Thus, to the majority of them it will be difficult at the beginning. This theme relates to the conclusion made by Hussain et al.(2011), Angelista & Gileard (2018) and Yan et al.(2018) that, the national or school education systems can impose restrictions that create an unpleasant environment for teachers to effectively administer a particular instructional strategy. In Tanzania for example the introduction of new constructivism curriculum should have gone hand in hand with working on the English language gap that exists between public and private secondary schools.

Overcrowding of classes

Previous scholars have stressed the fact that successful implementation of IBA requires a reasonable number of students in the class in order to engage them in learning(Kinsey & Moore, 2013; Machumu & Zhu, 2018; Obara & Bikai, 2019).The theme "overcrowding of classes" emerged from this study's findings relate with those views of experts. This concept has been also recognized by five informants (2, 3, 5, 6, 10). For example;

"I think it's our infrastructures, nature of our classrooms. Now you want to group your students, but students are many, you can observe the students in a class of 90 students, so how can you group them? And if you want them to present, you will delay finishing your topic" (Inf 5)

For this informant, the huge number of students makes it difficult even to form groups which she considered as the requirement of IBA. Another informant mentioned that students miss the opportunity to share because of their huge number. She went on commenting:

"I think one of the challenges is the number of students in the class, if the number is huge and you have already ask the students to find out ,or you have provide them with questions, each one want to share"(Inf2)

In conclusion, the large number of students in classes have been found to contradict with the requirement of IBA implementation since the approach is learner-centered, students need enough space and time to discuss, research, connect and express themselves (Stripling, 2008).

Negative perception of IBA

The sixth theme "Negative perception to IBA" represents the issues that have been recognized by two of the interviewed informants which seems to hinder the effective implementation of IBA. One informant focused on the attitude imposed by the politicians that:

"…politicians, they used to crush that, teachers you are giving our students the great loads since we give you salary. so sometimes the bad notion that there some sort of bad notion about the approach that the teacher is very lazy.so there some ppl who believe that the teacher self-centred is very, very clear for the teacher because he/she is going to be paid. that's the challenge" (Inf5)

For him, the IBA has been prone to criticism because it is claimed to reduce teachers' responsibilities while they are being paid for that job. On the other hand, another Informant remarked:

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"…whenever we use it for O-levels, they send the message to parents, that teachers here are not teaching us they just give us questions and work then we present that's all, they don't teach us. This is a challenge, IBA is not well understood by students and parents" (Inf 9)

This other informant blamed the attitude of students who complain to their parents about many assignments assuming they are not being taught in school. This attitude of politicians and students has been considered as an external influencer by Heindl (2019) and Silm et al., (2017) to have an indirect effect on teachers' commitments towards the implementation of IBA. Thus, necessary efforts such as giving awareness to the public about these kinds of initiatives should be done beforehand.

Creativity in teaching

Another theme "Creativity in teaching" represents the ideas in which informants in this study seem not to deny challenges but decide to face them with alternative means. The theme relates with the previous researchers who denote that teachers' interpretations of the challenges they face during teaching can sometimes determine their success (Chichekian & Shore, 2016).For example ,teachers may switch to scaffold their teaching with other possible means so as to realize their teaching goals(Ragab et al. and Ibrahim et al. (2017). In this study, two informants (4 and 10) mentioned to have been drawing diagrams on chalk boards to try to illustrate unavailable teaching and learning aids such as weather instruments. In a more similar way, Inf 7 mentioned to have used the alternative sources of getting learning materials from internet and peers' teachers from other schools. For them, coping with the resource challenges can be possible through using diagrams or borrowing from peers. As for Informant 1, her approach focused on utilizing the few books by distributing to share among the groups.

Reinforcement

The last theme "Reinforcement" has been found to reflect some of the ideas from the informants which they use to try to overcome the challenges they face during the use of IBA. In this study, three informants mentioned to have been using strategies to try to overcome the challenges of implementing IBA in class as follows;

"For me I always give them courage and say talk whatever you know nobody knows here coz for sure this is not our first language so nobody will laugh you so just express what you know, so they can do that for language (Inf1)

This informant seems to encourage students to master the use of English language in class through practicing it as well as reading English books. In contrast, Inf 3 and 9 seem to use punishment as a way to encourage students to attempt questions or do extra presentations:

a. "We provide punishment, such as improvising questions to the students who are lazy give them 10 or 20 questions and they are supposes to submit to the teacher" (Inf3)

b. "Those students who are lazy, what I use to emphasize them so as to be very sharp I give more presentations if you present today you fail to present, next time you repeat again next thing, it means you have two work to do, the first presentation and the second ,therefore it comes to torture, then they work hard so as to shift to others"(Inf9)

The concept of positive or negative reinforcement has also been recognized by previous researchers in education research to have helped the students of social studies to read and learn (Ilter, 2018)

CONCLUSION AND RECOMMENDATION

The purpose of this qualitative study was to explore the perception of geography teachers on Implementing Inquiry-Based Approach (IBA) for teaching. The study has shown a number of challenges that geography teachers perceive as a barrier to effective implementations of IBA in their schools. The challenges can be summarized as (I) Those related to inadequate leaching and learning resources (ii) Challenges attributed to the national curriculum and educational policy (iii) Challenges imposed by students, parents and politicians. The coping strategies signals the passion and efforts of teachers to persist with their teaching role. However, most of these challenges imply that, there still a lot to be done in Tanzania so as to achieve the benefits of IBA especially in this 21st century. Therefore, the Ministry of Education in Tanzania needs to address issues like overcrowding of classes by building more classes and recruiting more teachers and furnishing geography rooms with adequate teaching and learning facilities for all public schools. Although the curriculum development center has tried to review the secondary schools' curriculum, it appears that the geography curriculum content is too broad making it difficult for teachers to effectively implement IBA. Thus, there is need to reduce the number of topics so that teachers can have enough time to apply the approach within the specified time. Then the issue of language can be solved by introducing English language as a medium of instructions mandatory in all public schools from upper primary level. In addition, the spiritual-moral dimension can be integrated in the curriculum contents and methods of teaching in an attempt to produce balanced individuals who not only can excel intellectually but also can have a sense of humanity, accountability ,justice and moral integrity in their conduct. The policy makers should consider enforcing and monitoring teachers in Tanzania to use IBA emphasized by the nationally revised 2010 curriculum as it appears that some are still using the traditional teaching methods which contradict the Constructivism Paradigm. The issue of sensitization to the general public, students, parents and politicians about this IBA is very important to avoid unnecessary disturbance to teachers from being imposed by a negative perception towards the approach. Also issue of students' access to their smartphone gadgets should be revised in a way that teachers and students be empowered to integrate Information Technology (IT) in teaching and learning respectively. This initiative is inevitable in this 21st century, the 4th industrial revolution.

Furthermore, since this is the first qualitative study to investigate geography teachers' perceived challenges associated with the practice of IBA in Tanzania, there is a need for further research involving geography teachers from other regions of the country in order to get general and conclusive findings. Also, further research may consider using quantitative approach in order to make a comparison of findings.

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