

Epistemic Insight Teaching Approach: An approach for preparing students in Higher Education institutions to be relevant to the community?

Maureen Kanchebele-Sinyagwe
Mathematics and Statistics Department
Kwame Nkrumah University
Kabwe, Zambia
kabwema@yahoo.com

Abstract— Future generations can be prepared to effectively respond to community and global challenges and to live sustainably. Can this be done through an epistemic insight teaching approach? This qualitative study sought to explore how epistemic insight teaching approach could be used in preparing student teachers to be relevant to the school community and beyond. The study on epistemic insight teaching approach called into play ‘Big Questions’ about how we understand the place and purpose of humanity in the world. Questionnaire with open ended questions, semi-structured interviews and Focus Group Discussions were used to collect data from the 9 purposively selected student teachers. The paper describes the perspectives and experiences of epistemic insight teaching approach among the selected student teachers who are in their first year of their four-year degree programme at the selected university in Central Zambia. It also discusses some implications of epistemic insight teaching approach to the preparation of a future generation of teachers and individuals that is open, informed and enthusiastic about engaging in collaborations, at different levels, that seek to extend and challenge their current perspectives on life issues and community/societal problems. While the student teachers in this study expressed a positive outlook about the teaching approach, they also shared some challenges that have to be addressed to maximize on its potential benefits. It is hoped that the findings of this study would stimulate discussion and inform research and teaching practice in Higher Education.

Keywords— Epistemic insight, Big Questions, Higher Education teaching, community relevance

I. INTRODUCTION

This paper first presents the background information about the study under the subheadings ‘Epistemic Insight’ and ‘Big Questions’. This is followed by the presentation of the methodology used in the study before presenting and discussing the findings. The last section of this paper is the conclusion section.

A. Epistemic Insight

Epistemic Insight (EI) is “knowledge about knowledge”[1]. It involves appreciating the distinctiveness of an individual subject area where there is in-depth understanding of the types of questions, methods, approaches aligned with that individual subject area to inform knowledge. It also stretches to identifying how one individual subject area is linked to other subject areas. This therefore implies that EI teaching approach accommodates a multi-disciplinary approach in teaching/learning and solving

of the problems of life and the world. The EI approach is important for Higher Education (HE) in general and teacher education in particular, where there seems to be a focus on individual subject areas. This is because it allows for an interdisciplinary approach to the bodies of knowledge. EI approach aims at giving opportunity for students to consider how the individual subject areas/courses are taking matches against other subject areas to solve problems from different perspectives. The uniqueness of each subject area/course is explored as is the interconnectedness of the subject areas/course especially with relation to application of the acquired knowledge to real life situations. The EI Curriculum Framework presents a pedagogical and learning framework for the development of Epistemic insight [2]. Discussing EI may need to be accompanied by the discussion of Epistemic Agency (EA). EA involves learners taking personal and collective responsibility for acquiring and advancing knowledge [3]. While knowledge or reality may be looked at with different lenses, a shared understanding emerges as a result of the interaction among different learners in a given learning environment or community. It is argued that EI and EA be developed and developed in context.

From information provided above, it can be deduced that EI Approach has a way of contributing toward the development of values and competencies highlighted in the Zambia Education Curriculum Framework (ZECF) of 2013. To exemplify this, EI approach has high potential for the development of key values and competencies such as innovation, inquiry and curiosity, critical and analytical thinking in addition to problem solving which the ZECF has emphasized that they be developed and nurtured in learners. It is also in line with the calls of the ZECF to put emphasis on linking education to real life experiences ‘as this gives learners skills to access, criticize, analyse and apply knowledge’...” [4] to respond to the needs of the community or society. The EI and EA approach can be developed through addressing ‘Big Questions’[5] and community/global challenges.

B. ‘Big Questions’

Examples of ‘Big Questions’ about humanity and the nature of reality are: ‘Why do we exist?’ ‘What does it mean to be me/you?’, ‘Why can’t we live longer than 100 or 150 years for the most?’ ‘Big Questions’ are questions that are ‘...complex and invite enquiry through many disciplines...[they] seldom have simple agreed-upon

answers' [5]. The above-mentioned are examples of 'Big Questions' that student(s) in higher education can ask and which they may be asked in their respective communities. Thinking about or responding to such questions cannot be obtained by simply aligning the responses to one subject/course of a particular programme in a higher education institution because there are multiple disciplines or fields that could help in looking at and providing an answer(s) to the questions. Solutions or responses might be drawn upon perspectives from different subject disciplines/courses such as Mathematics, Science, Geography, Religious Education, History among others. For student teachers in this study in particular solutions or responses might be drawn upon perspectives from different subject disciplines/courses that they undertake as primary pre-service teachers which include Mathematics, Science, Home Economics and Social Studies (Religious studies, Geography, History) and Education psychology and sociology among others.

II. METHODOLOGY

Data was collected through the use of a questionnaire with open-ended questions, follow up interviews and focus group discussions (FGD). The time(s) for the Mathematics lessons were used to pilot EI approach through an exploration of the 'Big Questions'. The lesson(s) for the days was on the aims and value of teaching/learning Mathematics as well as beliefs about Mathematics teaching/learning which are subtopics for the main topic 'An introduction to Mathematics and Mathematics Education'. This was also extended to the topics 'Sets' and 'The Basic Operations'. This opportunity was seized to pilot and ask the nine (9) purposefully selected pre-service primary teachers to individually write down their responses, talk about their responses (interviews) individually and then later on as a group (FGD) to the 'Big Questions'. The 'Big Questions' included: 'What does it mean to be alive?' 'Why do we exist?' and 'what does it mean to be you?' Thus 'Big Questions' were used to explore Epistemic Insight- 'knowledge about knowledge'- and epistemic insight instruction with students.

A. Background Information about the Study Participants

This background information about the study participants is provided to facilitate an understanding and the justification of the purposeful choice of study participants. Initial primary teacher education for the study participants at the selected higher education institution may be said to follow a similar pattern as that offered in other primary teacher education institutions in Zambia. Generally, the trainee or pre-service teachers are offered compulsory education courses which relate to education theory in trying to explain practice. These courses include: philosophy of education, educational psychology, sociology of education, special education and ethics in education among others. Such courses are generally designed to provide general knowledge and skills for teaching [6]. The trainee teachers being prepared for primary school teaching also take foundational course content such as in Mathematics, Literacy and Languages, Physical Education, Integrated Science, Social Studies and Home Economics and from

which they choose the one(s) they are to specialize in in their third and fourth year of study. The expectation is that it is through these courses that they will further develop skills and knowledge relating to the content area of the teaching subject(s) they have to choose to specialize in. The then Ministry of General Education in Zambia introduced subject specialization at primary school [7] which was not the case in the past where teachers were expected to teach all subjects to one group of learners each year.

Subject specialization, which had been a preserve for the secondary school [8], but is now being practiced in primary school has its own benefits. It is argued that with specialization, teachers; would have an in-depth understanding and mastery of subject content; would be more competent to teach the subjects they specialize in and; more efficient [7, 9]. On the other hand, this leads to subject compartmentalisation, which has potential to promote curriculum fragmentation [7, 10]. "While immersing students in the questions, methods and norms of thought of a single discipline at a time is critically important, students also need frameworks and bridges to enable them to move successfully between their subject compartments"[1].

When in third year, the students are supposed to add on what is generally considered as methodology courses and content which "...are pedagogical in nature"[11] aligned with their specialized or chosen teaching courses. These courses further contribute to the development of pedagogical content knowledge which, was initiated in their first year of study, and include techniques, strategies and procedures for teaching the content of the chosen subject of specialization. The opportunity to interconnect learning across subjects appears is said to be less robust under subject area specialization [7, 12]. There is therefore need to explore ways of presenting and developing in such a way that they are seen to be interconnected. Using the EI approach and asking the 'Big Questions' could allow for this. In fact, with this day of new and emerging technologies, it is important to prepare teachers for 'Big Questions' that may be raised by young learners at primary school or members of the community at large. For instance, with advancement in technology has come more sophisticated and 'humanlike' robots. Questions such as 'can a robot be a human' or questions such as '...of whether humanlike machines should be granted the status and/or legal responsibilities of personhood'[13] can be asked by young learners and or adults alike. If teachers are not initiated into or trained to deal with such complex questions, then they may end up denying learners opportunities to be more critical and analytical in exploring knowledge and dealing with life issues.

III. PRESENTATION AND DISCUSSION OF FINDINGS

The presentation and discussion of findings have been done under three themes that emerged in the thematic analysis of data. These themes are: nature of and way of asking the 'Big Questions'; responses to the 'Big Questions' and: perceived challenges in dealing with 'Big Questions'.

A. Nature of and way of asking the 'Big Questions'

As mentioned earlier, the 'Big Questions' were used to explore Epistemic Insight and epistemic insight instruction

with the student teachers. Some students indicated that they initially saw and thought of the big questions as ‘*off-topic questions*’ and asking of ‘*off-questions*’. They also perceived the questions asked as ‘*complex*’ and ‘*controversial*’. Others dismissed them as ‘*unnecessary*’ and ‘*complex for nothing*’. The need for asking or responding to such was not immediately appreciated. One student teacher for instance stated that ‘... *I was wondering why we had to start looking at things that are not Mathematics...*’. They, however, were later on able to admit how they got to see the connectedness to Mathematics, and the topics under discussion, and appreciated the value in engaging in the exploration of the ‘Big Questions’. This was confirmed by one student who indicated that; ‘*I did not get it at first but ...I found this lesson very interesting and learnt a lot more than I thought...*’. The student teachers later on expressed the view that they were interested in asking and answering such big questions and expressed interest in exploring the responses to the questions and how Mathematics could work together with other subject areas/courses to explore such topics for their solutions. Views such as: ‘... *I am interested in this, but need to think a lot more about how what I know about Mathematics and History can help give answers...*’. Despite stating that the questions were complex and controversial, the students demonstrated interest to explore knowledge further especially with the interconnectedness of ideas from different disciplines in order to respond to the ‘Big Questions’. They were in the process able to identify some similarities and differences that Mathematics has with other subjects such as Science or Social Studies with respect to exploring ways of knowing or acquiring knowledge. Epistemic Insight Approach has a way of contributing to making learners/students appreciate their capacity to think deeply about issues. It has a way of developing reflective student teacher practitioners and student teacher-researchers who will have to do (academic) research [14].

B. Responses to the ‘Big Questions’

Student teachers’ responses to the ‘Big Questions’ showed that their responses stemmed from different perspectives. The responses included: ‘*God has a plan for us to be here even though I don’t know exactly what that plan is for me ...how does one even know the same plan...?*’

‘...*in my culture the family spirits or ancestors... decide...*’

‘*I actually don’t know for sure why I am here on earth ...maybe it is to help fill the space...*’

‘...*It was my parents’ wish that I be born...*’

Their responses stemmed from different perspectives including from scientific, cultural and religious perspectives. This strengthens the argument for and benefits of EI an EA approach [2, 3] as explained above.

Through the one-to-one interviews the student teachers had an opportunity to think through once again and exercise their freedom to speak out on ‘Big Questions’ asked. Through the focus group discussions, they realised that there was more to the ‘Big Questions’ than they thought

especially that they had opportunities to engage with others who responded to the questions with a different perspective aligning with a discipline different from theirs in cases. One student had this to say ‘...*That to me was a science or religious studies question- and I would not at any point think of it otherwise...*’. The students had openly started resonating with and appreciating multidisciplinary thinking in dealing with issues. Views such as ‘*I wish I was aware of this way of thinking when dealing with my issues...*’ were raised and pointed to the value of EI pedagogy in enhancing one’s thinking and problem-solving abilities. Complex problems of life and the world are best solved when multidisciplinary and interdisciplinary approaches to problems solving are adopted [15].

The student teachers had a chance to first address or respond to the ‘Big Questions’ by writing down their thoughts on paper. Some also went ahead and shared other questions, covering a variety of topics, which they thought would be worth addressing. These included: ‘*What is living life?*’, ‘*What is free will?*’, ‘*Is free will really free?*’, ‘*What is the value of colour?*’, ‘*What is health?*’, ‘*What food is the right food for health?*’ Some of these questions are similar to those asked in different contexts such presented by other researchers [13, 15]. The questions asked gave an idea that students do indeed have and are also curious about life questions and (could be) interested to ask their questions given a platform and opportunity to. It also showed that they were engaging actively in their learning and “...deciding what and how they will learn”[17, 18]. It can be argued that giving student teachers the opportunity to exercise independent thinking and to collaborate with others to discuss the ‘Big Questions’ contributed to them being more thoughtful, open and engaged in thinking more about knowledge and knowledge production. This could be an indication of moving away from “entrenched subject compartmentalization”[1] and its limits in knowledge production and acquisition. This could also be an indication of enhanced appreciation of one’s potential to deal with challenging personal and professional life and community issues.

C. Perceived challenges of the EI Approach

While students demonstrated (from the completed questionnaire and the interview responses) an interest and desire to think and talk about topics such as these contained in the, ‘Big Questions’ asked, they also expressed challenges that needed to be addressed along the way of learning in such a manner (EI Approach). The challenges have been categorized under the themes: time constraints and factors related to lecturers.

1) Time constraint

One student indicated that ‘...*I am not sure about where to put a subject like this on the timetable...our timetable is packed...*’ Exploring range of answers to questions of such a nature and providing the needed justification may require ample time which does not seem to reflect on the students’ learning timetable and does not appear as a learning requirement on the course outline(s) for example. One student teacher commented to this effect during the interview: ‘...*it doesn’t look like a topic on our course outline ...or even appearing on the timetable.*’

The student teachers' times are taken up by the many lessons to be attended in each of the different courses they are to learn. The need for (more) opportunities for the demonstration of EI approach need to be considered including having EI reflecting in the teaching and learning practices in higher education. This may encompass what may be considered as informal and formal teaching/learning opportunities [14].

2) Factors related to lecturers

These included lecturer awareness, willingness and ability in relation to EI teaching approach and the 'Big Questions'. One student teacher mentioned that '...if this were that important to our lecturers for the other courses, as I think it is, we could have been learning there as well...' This could point to limitations/challenges that lecturers themselves could be facing that is: not being aware of such a teaching approach and not having the know-how for implementation.

It is argued that EI approach can and should be developed across all HE subjects/courses and disciplines as a general disposition that can help students become thoughtful and engaged critical consumers of knowledge throughout their lives. Considering the time restrictions, a suggestion to explore several other avenues for integration of EI in the HE curriculum may have to be considered. The idea of 'after-lectures' club/association could be considered too to have potential to provide the space and environment for facilitating discussions of 'Big Questions' of life and the community at large. Others could be the EI approach being integrated into HE curriculum and subjects of specialisation as this would allow for topics strategically integrated in the lessons in advance [14, 17]. Such may not go without thoroughly equipping educators/lecturers with the relevant knowledge and skills for implementing EI approach. There is need to up the knowledge and skills of the educators for the fulfilment of the task and evaluation of progress or success in the same during teacher training and preparation. Further research may need to be done into these areas to establish feasibility and practicability in the context of different HE institutions.

IV. CONCLUSION

EI teaching approach has potential to spark student's learning curiosity for the present and the future lives. It can contribute to making students become more thoughtful and critical knowledge explorers and consumers. In addition, EI teaching approach has potential to empower students to effectively respond to issues in their personal lives and those of the community and to live sustainably through a multi-disciplinary and interdisciplinary approach to issues. Multidisciplinary and interdisciplinary approaches to problems solving are critical in solving complex life/community/world problems. Students can be supported in adopting such approaches and hence prepare them for being more relevant members of their different communities. They can be supported to understand individual disciplines and how these different individual disciplines interact to provide richer answers to the 'Big Questions' life issues and community problems/challenges.

This can be done through EI teaching approach. If curiosity, thoughtful and critical thinking is not ignited and nurtured in students, such as through EI approach, then chances of the students being more relevant to their communities may be hampered.

An opportunity was seized to pilot the exploration of EI approach through the 'Big Questions' among the student teachers. The perceived and experienced benefits of EI approach have been highlighted, but so are the challenges that may be faced in practice and implementation. It is hoped that the findings of this study would stimulate discussion and inform research and teaching practice in HE.

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