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Teachers Understanding and Attitudes Towards Inductive and Deductive Approaches to Teaching Social Sciences

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Abstract

Social science teachers in secondary schools apply a variety of teaching approaches in their day to day teaching and learning processes. Such approaches are meant to achieve effective teaching and learning. Effective teaching refers to teachers accomplishing their planned goals and assigned tasks in accordance with the curriculum objectives. Therefore, the study investigated the use of deductive and inductive methods in teaching social science subjects in secondary schools, specifically history and civic education. The authors are aware that a distinction between deductive and inductive methods is not easy to sustain because the two concepts are usually driven by the ideological strands. While, there is no agreed upon standard of teaching history and civic education in schools, it is important that this paper attempts to understand the teaching instructions or approaches that are normally applied in the schools. The study was conducted during the time when the association was having their quarterly

workshops in Kafue District of Zambia. In trying to demonstrate how the two methods could be used in social science subjects in schools, the study applied Basil Bernstein's vertical and horizontal discourse. The study was mainly qualitative in nature and participants were drawn through the use of purposive sampling technique. Data was collected through focus group discussions as well as an unstructured open ended interview guide and the taking down of interview notes. The results from the study shows that social science teachers in schools understood the epistemology of deductive and inductive approaches but are not following the correct procedures in the utilisation of the two concepts when teaching. It was also noted that some teachers did utilise the two methods while others were not applying them. The study further noted that some teachers had a negative attitude towards deductive methods as opposed to inductive methods. The study concludes that generally, teachers of social science subjects in schools did not have the grip on deductive and inductive methods.

Keywords: deductive, inductive, teacher, teaching, social science teaching, secondary education

Introduction

The teaching of social sciences in secondary schools has become important as it impacts social knowledge in the learners. Social science is a branch of study which deals with human beings, their behaviours and the various institutions. Examples of subjects taught under social sciences at secondary school level in Zambia

include History, Civic Education, Geography and Religious Education. In delivering social science lessons, teachers are required to use different teaching styles such as class/group discussion, lecture method, question and answer inquiry method, project method and discovery method. Teachers may decide to use one method over the others or may combine any of them (Curriculum Development Centre, 2015).

The concept of social science teaching in particular history and civic education in Zambia has evolved and changed over the past years due to curriculum policy changes. This entails that teachers need to use a wide-range selection of different teaching and learning models, strategies and techniques. In addition, teaching consists of knowing how to create the right conditions for learning. The choice is however determined by the nature of the learning objectives set for the learners. According to Santos (2017), teaching social sciences require teachers to involve learners in mastering of critical and creative thinking skills and thinking strategies. This means going beyond a learners thinking and understanding capacity hence resulting in effective teaching. Some scholars such as Mulenga (2015), Muleya (2015) and Mwanza (2016) just to mention a few argue that for effective teaching to be attained, teachers must use various approaches.

The history of high school syllabus has been designed in such a way that teachers will find it a useful tool in the teaching of history. Similarly, the civic education high school syllabus undoubtedly recognises its importance in helping teacher's impact civic knowledge, skill and values to learners. Therefore, the Ministry of General Education, through the teaching of history and civic education, hopes that learners can be equipped with knowledge that can be applied in their day to day lives through inductive approach (CDC, 2015). Notably, both syllabi do not clearly state how the inductive approach should be used in the teaching/learning process. In addition, both syllabi are silent on the use of the deductive approach which is another important approach to

teaching. One of the general objectives in Central African History states that learners should be able to “develop an understanding of the functions of social institutions and roles of individuals and groups in different cultural settings in both the past and present” (CDC, 2015: V). Equally, in civic education, one of the general objectives on the topic on constitution, the syllabus states that learners should be able to “describe the process of constitution making” (CDC, 2015: 6). As noted by the two objectives, it can be deduced that the two syllabi do not state how the learner centred approach can be used by teachers when teaching the topics.

As such, there is a growing demand to examine the use of deductive and inductive approaches in teaching social sciences. This paper investigates the teachers understanding and attitudes towards inductive and deductive approaches to the teaching of history and civic education among secondary school teachers in Lusaka district.

An Overview of Literature

It is important to note that there are various variables that influence the outcomes of any given lesson. Such variables include; the presentation of the subject matter and the pedagogical approach used to deliver the content. According to Sik (2014), inductive teaching refers to an instructional approach in which learners are firstly presented with educational challenges and explore them in order to address them. Inductive teaching utilises the use of learners as resources in the classroom. Learners should be given examples of the content under study instead of beginning with general principles. Inductive teaching begins with specifics, thus a set of observations or experimental data to interpret, a case study to analyse, or a complex real-world problem to solve is required. As the learners attempt to analyse data or scenario or solve the problem, they generate a need for facts, rules, procedures, and guiding principles, at which point they are either presented with the needed information or helped to discover it for themselves (Erlam, 2003).

In contrast, deductive teaching allows the teacher to introduce a topic by using teacher exposition or lecturing method. Deductive teaching uses ideologies to develop understanding, gives learners practice on similar bases and applications in follow up activities, and further scrutinises their ability to do the same sort of activities during assessments. Little or no attention is initially paid to the question of why any topic is being taught, the meaning of the key concepts and how learners can apply them to the real life environment. Therefore, in a deductive classroom, the teacher conducts lessons by merely introducing and explaining concepts to learners, and then expecting them to complete tasks to practice the concepts, this approach is teacher-centred. Conversely, inductive teaching is a much more learner-centred approach (Sik, 2014). Learner centred approach requires pupils to be actively involved in the lesson and enables them to participate more. Weimer (2002), notes that a learner centred approach is an instructional approach that focuses on the process of learning, in which learners can solve problems, answer questions and are actively participating in the lesson. Learner centred approaches have also been defined by McCombs & Whisler (1997), as a perspective that couples a focus on individual learners with a focus on learning. Thus, learner centred approach encourages learners to critically reflect on what they are learning and how they are learning it.

It is important to note that both approaches have advantages and disadvantages. It is clear from the brief literature given that the teaching approaches merits and demerits varies depending on the level and maturity of the learners and the learning environment. Chalipa (2013), notes that some advantages of deductive approach are that it gets straight to the point and can therefore be time saving. Many concepts can simply and quickly be covered than when using inductive approach where all learners must be part and parcel of the classroom activity. He further points out that deductive approach can place heavy demands on teachers in planning concepts. On the other hand, inductive approach tried to relate conceptual meaning to the learners' past learning experience.

The inductive approach may be more attractive since it is learner-centred and encourages learner autonomy. However, it may be disadvantageous when it comes to the use of time, as it is rather time consuming, and might not be appropriate for all ages. Deductive approach, on the other hand, may be more controllable and it goes from easy to difficult, but it might discourage learners to discover different things by themselves owing to its nature which is teacher centred (Atta et al, 2015).

Erlam (2003), compared the effectiveness of inductive and deductive approaches and conclude that the deductive approach was more advantageous because teachers understood the subject matter. Fischer (1979) too, observed that many methodologists maintain that a deductive approach in which the explanation of a grammatical principle precedes its application is more logical and leads to a higher degree of certainty of grammatical knowledge. Equally, a study by Selinger (1975) demonstrated the superiority of deductive approach over inductive approach among learners in higher learning institutions. Similarly, Shaffer (1989) criticized the deductive approach for making the learner passive and supports the assertion that retention of ideas in deductive approach takes longer among learners. While, the inductive approach is more active as it involves full participation of learners.

Statement of the Problem

Inductive and deductive teaching approaches constitute an important element in effective education development. There are not only vital in enhancing the teachers' professional potentials but help to improve learners' intellectual skills and capacities. Learners can grasp better understanding of concepts in their subjects if they are exposed to the appropriate teaching approaches. Therefore, this study sought to investigate teachers' understanding and attitudes towards inductive and deductive approaches to teaching of history and civic education in Lusaka district.

Objectives

1. To establish the teachers understanding of inductive and deductive approaches to teaching history and civic education.
2. To determine the teachers' attitudes towards the use of inductive and deductive approaches to teaching history and civic education.
3. To determine the link between the deductive and inductive methods of teaching and learners participation in the lesson

Theoretical Framework (Basil Bernstein's Horizontal and Vertical Discourse)

The study used a theoretical framework derived from the work of Basil Bernstein's notion of vertical and horizontal discourse to investigate teachers understanding and attitudes towards inductive and deductive approaches to teaching history and civic education in Lusaka district. Bernstein (1999), distinguishes between two essential forms of discourse in relation to education, the horizontal and vertical. The horizontal discourse is key and represents everyday knowledge or common sense knowledge. While, the vertical discourse denotes academic knowledge or formal knowledge. Everyday knowledge is characterised with socialisation and practices that surround the environment.

Under the vertical discourse, schools and teachers sieve and frame content which is in the syllabus which Bernstein coins as the process of re-contextualization of knowledge (Bernstein, 2000). He further notes that at the level of re-contextualisation of knowledge, forms of power and control exist. According to Singh (1997:7), Bernstein defines re-contextualisation as the rules or procedures by which educational knowledge is moved from one educational site to another. In the case of Zambia, the government through the curriculum development centre and other stakeholders control the content to be taught by teachers to learners in schools.

It is vital to note that horizontal knowledge does not follow a given approach, system and analysis of communication and acquiring knowledge. This study uses the notion of vertical and horizontal discourse in investigating the teaching of social sciences subjects through the lenses of inductive and deductive approaches. It is argued that secondary school pupils acquire knowledge in their various communities which teachers of social science should be able to embrace in the academic knowledge using deductive or inductive approach.

The study used Bernstein's theory of vertical and horizontal discourse in relation to teachers understanding and attitudes of inductive and deductive approach because it is believed that learners are not empty vessels. This implies that learners in the classroom already know something as they learn, this is because they are socialized and influenced by various factors such the community, the school and government policies such as the syllabus and the curriculum policy. Therefore, what approach is used to teach history and civic education is of major concern. The factors alluded to above are vital components for effective teaching and learning as they aid in re-contextualization of official knowledge.

Methods of Data Collection and Analysis

The research employed a qualitative case study approach in understanding the theme under investigation. Hancock (2002:6) notes that "qualitative research is used in social sciences to enable researchers to understand a given phenomenon". Thus, qualitative research is concerned with interpreting relationships, events, situations and meaning in society. A case of Zambian Teachers Social Sciences Association was used in the study. Similarly, Richards (2006:1) observes that "a common feature of qualitative research aims at creating understanding from data as the analysis proceeds". The study was conducted during the time when the

association was having their quarterly workshops in Kafue District of Zambia. Data was collected through focus group discussions as well as an unstructured open ended interview, the taking down of interview notes, document analysis and classroom lesson observations. Classroom lesson observations were conducted in order to measure the extent of recontextualisation of the vertical and horizontal discourse. The data collection techniques employed helped to enhance an in-depth understanding of the investigation of social sciences teacher use of inductive and deductive approaches in teaching. The study targeted 7 history teachers and 7 Civic Education teachers. Purposive sampling technique was used. Criterion purposive sampling was used to draw up the participants. The findings of the study were qualitatively analysed according to emerging themes (Patton, 2002). A descriptive approach was employed to explain the various categories of the data.

Study Findings and Discussion

This section presents the findings of the study on the teaching of Social Science subjects in secondary schools through the lens of deductive and inductive methods.

Social science teachers understanding of deductive and inductive teaching

The study revealed that teachers understood the meaning of inductive and deductive approach to teaching. Some of the teachers' responses were coded below:

Teacher A: "Inductive approach to teaching is learner centred". An explanation was given to say Africa is a continent, it is one of the many continents in the globe, and the earth is a globe.

Teacher B: "Inductive teaching is an approach where learners are introduced to concepts from the known to the unknown, for example, learners in grade 10 history class are

taught bantu migration before European history”.

Teacher C: Responses on deductive approaches to teaching were: “teaching moving from general to specific, for example: the earth is a globe, the earth has many continents, and Africa is a continent”.

Teacher D: Another response was that teachers “teach in order to deduce information from the learners, for example, asking learner’s questions and make conclusions. for instance; do you know what climate is? What is climate?”

It has been observed that social science teachers understood the two teaching approaches and their understanding is in line with Sik (2014), who states that inductive teaching is more student centred and encourages participation and has the potential to involve the maximum number of students as possible in the lesson. While, Atta, Ayaz and Nawaz (2015), contend that deductive method is an approach based on deduction and mainly proceeds from general to particular or absolute to concrete.

The Use of Deductive versus Inductive Methods of Teaching.

When the question was asked to the teachers on which approach they preferred to use when carrying out their lessons, they stated the following:

Teacher E: “Both approaches deductive and inductive all apply depending on the topic one is handling at a particular time.”

Teacher F: Noted that he preferred using the inductive approach, he stated that “it saves as a building block and brings about authenticity of learning materials.”

Teacher G: “I prefer using inductive because it helps in trends analysis as pupils are able to conceptualize information than deductive which needs concerted effort from the teacher.”

From the findings, the teachers revealed that they use both approaches in teaching social sciences. These two approaches have merits and demerits and thus teachers felt that both approaches were significant. Menga (2002), observes that the inductive approach enables learners to acquire skills through practice but does not lead them to critical thinking and analysis. Deductive approach helps teachers to unpack concepts and explains them in-depth. However, its disadvantage is that it is more teacher centred as compared to inductive. Although some of the teachers were convinced in using the inductive approach to teaching social sciences, many schools lack teaching and learning resources, therefore, affecting the teaching and learning outcomes. While inductive approach is widely accepted by many disciplines, it has not been easy to implement by most of the teachers. In addition, in line with Bernstein's notion of horizontal and vertical discourses, academic knowledge can be influenced by common sense knowledge. In this case social science teacher's backgrounds have a great influence on what approach to use when teaching.

Furthermore, social science teachers' utilization of approaches when teaching maybe influenced by the learners' background knowledge as the learners are not empty vessels. Therefore, the two discourses must be able to comprehend each other when teaching social sciences in order to attain the desirable outcomes.

Teacher's Attitudes Toward the Use of Inductive and Deductive Approaches

Another research question was on the attitudes of teachers towards the use of inductive and deductive approach when teaching. Below is an example of a discussion with one of the teachers.

Researcher: How do you make your choice of teaching approach?

Teacher: It depends on the kind of class I am teaching.

Researcher: What do you mean ‘kind of class’?

Teacher: I mean a class with pupils that are more active and motivated than others. Madam, at this school, pupils are allocated to classes according to their grade nine performance.

Researcher: So what approach do you use for the more active and motivated learners?

Teacher: Truthfully speaking, I use inductive with such learners.

Researcher: Why?

Teacher: This is because, with learners, those that are active and motivated tend to talk more, participate more and can follow the question and answer method, they are just willing to learn. For the less active classes like my open learning class I use the deductive approach because I just need to explain to them as they rarely ask me any questions or participate.

In line with Bernstein’s notion of horizontal and vertical discourse, it can be argued that pupils are not empty tins or do not learn in an empty vacuum because of their socialization they possess some common sense knowledge. This notion is in line with the results that indicated that most teachers had a positive attitude towards the use of inductive approach in classes that were more active, motivated and participative. In classes that were less motivated, less active and less participative, teachers tended to have a negative attitude towards the use of inductive as they used more of deductive approach. From the above results, it can be deduced that teachers preferred to move from the known (horizontal discourse) to the unknown (vertical discourse). Thus, this entails that teachers re-contextualize the content material from specifically what pupils know to generally what they do not know which is in the syllabus.

Link between Deductive and Inductive Methods of Teaching and Learners Participation in the Lesson

In the link between inductive and deductive approaches to teaching and learner participation in the classroom, the participants revealed that: *“teaching using inductive method was better than using deductive methods as it is learner centred. The participants further stated that learners participated more when inductive approach was used.”*

The teachers stated that the inductive approach resulted in a more significant participation of learners and yielded better results than the deductive approach. These results are consistent with a study by Herros and Tomasello (1992), who state that inductive teaching would result in better performance overall than the deductive approach. Similarly, Kuder (2009) adds that “there is a slightly higher level of achievement as well as a higher level of participation when learners are exposed to the inductive approach than deductive approach.” However, (Robinson, 1996) argues that deductive approach was more profitable and successful in teaching pupils.

Therefore, it can be deduced that depending on how, when and why the approach is used teachers are free to use either or both the approaches as long as there is full participation of the learners in the lesson and effective delivery of the lesson. As noted by Singh (2002:2), “through re-contextualisation a discourse is moved from its original site of production to another site where it is altered as it is related to other discourses. The re-contextualised discourse no longer resembles the original because it has been pedagogised or converted into pedagogic discourse.”

Comments from the Classroom Lesson Observation

From the classroom lesson observations, this study revealed that they used the inductive approach when teaching however, in some cases, they did not demonstrate skills on how to utilise the

approach and tended to use more of the deductive approach. The following are selected summaries of comments for both history and civic education that were obtained from the observation forms.

TH 1 (History teacher)

Topic: *The Expansion of Kazembe's Kingdom*

Comment: The teacher was nervous and forgot to write the title on the board. The lesson introduction was okay although a proper recap was needed especially when introducing a new topic. There was no variation of approaches during the lesson. The teacher kept on using question and answer but did not give pupils time to grasp the question and kept on answering the questions himself. The teacher was constantly facing the board. Overall, there is room for improvement.

TH 2 (History teacher)

Topic: *Early stone age tools*

Comment: The teacher introduced the day's lesson with a recap of the previous lesson, however it did not adequately match with the day's lesson. Class management was poor, the teacher kept on teaching despite having little attention from the pupils. A picture was used as a teaching learning aid and the teacher exhibited good subject knowledge. The teacher allowed the pupils to visualise the teaching aid but did not involve them in the picture study discussion. Overall, the lesson was successful despite the shortcomings above.

T C 1 (Civic Education teacher)

Topic: *Substance Abuse*

Comment: The teacher introduced the lesson well as she was able to link the concept of substance abuse from the pupil's

community experiences. The teacher then developed the lesson using the actual substances that can be abused by people such as beer, Panadol and glue. The teacher had good subject knowledge as well as good pupil teacher interaction. Otherwise, there was enough evidence of the teaching and learning process.

T C 2 (Civic Education teacher)

Topic: *Corruption*

Comment: The teacher was not able to introduce the lesson well as he went straight into discussing on what corruption is without asking the pupils any prior knowledge on the concept. The teacher did not use any form of teaching and learning aid and had certain mannerisms, which kept on disturbing the pupils, he kept on saying “waona ka” which means “you see now”. The lesson was teacher centred and the teacher was unable to conclude the day’s lesson and quickly skipped to dictate the homework to the pupils.

From the findings, the study established that teachers of history and civic education preferred to use inductive approach to teaching but in most cases did not demonstrate better skills in utilizing the approach, this can be seen from the observations that were carried out that is; T C 2, T H 1 and T H 2. The three teachers failed to utilize the inductive approach as they could not build on what pupils already know. For instance, T H 2 could have asked learners to identify the types of tools that pupils use in their gardens and in the kitchen and then relate this to the early Stone Age tools. T C 2 completely failed to re-contextualize the topic as from the introduction of the lesson, he failed to relate the day’s lesson to the real life situations as the lesson development was substitutes with phrases such as “waona ka” which led to learners failing to participate in the lesson. This causes a pedagogical challenge as teachers from the introduction to the development of the lesson failed to properly re-contextualize the subject content. However,

T C 1 was able to relate to the pupils common sense knowledge by showing them the actual substances that may be abused in society and this proves to be an effective way of teaching.

Recommendations

In the light of the major findings above, the following recommendations are being proposed.

1. Further research must be undertaken by scholars to investigate the link on pupils' final examination performance and the use of inductive and deductive approaches' of teaching in social sciences.
2. Stakeholders need to train social science teachers on the use and importance of inductive and deductive approaches.
3. The Ministry of General Education must work hand in hand with secondary schools to help create an enabling environment for teachers to work.

Conclusion

In conclusion, since teachers are said to be the main players in implementing educational goals, it is essential that they use various approaches when teaching learners in the classroom. The use of various approaches can enhance effective teaching and result in improved performance among learners. The study findings indicate that teachers preferred to use the inductive approach as compared to the deductive approach. It should however be pointed out that one approach to teaching social sciences may disadvantage learners performance. It is also important that teachers of social sciences should apply the horizontal and vertical discourse when teaching. Everyday knowledge is key in enabling critical application of what is taught to learners or academic knowledge.

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