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Teacher Education in Africa and Critical Thinking Skills: Needs and Strategies

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ABSTRACT

This study advocates for conscious introduction of the teaching of critical thinking skills in to teacher education in Africa as part of the solutions and reforms to making education work for sustainable development in the continent. It noted that the various education reforms may not succeed and development may remain elusive while Africa will not able to contribute to the current rapid development in science and technology if teachers remain poorly-skilled. An analysis of past questions of undergraduate and postgraduate teacher education programmes of a Faculty of Education revealed too much emphasis on the lower level cognitive skills, recall and understanding (88.0 and 82.2%, respectively), to the detriment of higher order skills, analysis, synthesis and evaluation (12.0 and 17.8%, respectively). This may be responsible for student massive failures and unemployment of higher education graduates. The need for teaching critical thinking skills to would-be teachers and its characteristics were discussed in the study. Some strategies that could be adapted for teaching critical thinking skills at higher education level and the likely challenges that could be encountered were also raised. It was recommended that critical thinking should be purposely included in all teacher education programmes in Africa as part of general studies course and in all teaching subjects and methodology courses. For effectiveness, a long-term, institution-wide approach should be adopted and workshops should be arranged to train lecturers.

Key words: Critical thinking, lecturers' consciousness of critical thinking, characteristics of, needs and strategies for critical thinking, teacher education

INTRODUCTION

One factor that is common to all African countries in under-development, but the good news is the increasing awareness since the 1990s that education is the catalyst to sustainable development, hence the many educational conferences both within and outside the continent in the 1990s, which have generated some educational policies like Universal Basic Education (UBE), Education for All (EFA), Millennium Development Goals (MDG) (Obanya, 2002) and Imbewu in South Africa. What is becoming increasingly clear in today's world however is that a nation's development is significantly dependent on the quality of her human capital which is in turn dependent on the quality of education they receive. It is the reason why the World Bank and some other international donors are sponsoring various education reforms in Sub Saharan Africa including Kwara, Kaduna and Kano states in Nigeria, Madagascar, Sierra Leone, Ghana, Senegal, etc. However, there is no automatic connection between education and development except through

the quality and quantity of knowledge and skills both practical and cognitive that the beneficiaries are exposed to at all levels, particularly at the higher education level (teacher education included) which is purposely designed to produce high level manpower (Fafunwa, 2004).

One aspect of the cognitive or intellectual skills that is relevant with wide applicability and which students should imbibe as they go through the educational ladder as simply expressed in Nigeria's national policy on education is the ability to think for themselves. This refers to ability to engage in critical thinking to enable them acquire an objective view of the local and external environment as well as become useful members of the society (Federal Republic of Nigeria, 2004). The type of curriculum designed, its quality, the instructional delivery, which accommodate critical thinking skills are therefore germane for manpower development. This implies that teacher education must provide training in critical thinking among other skills.

The role of the teacher in schools has remained a significant factor in education. Even with the increasing use of Computer Based Teaching and Testing (CBTT), the teacher's role is still intact if only to prepare courseware and conduct on-line discussion and evaluation. If Africa must make the highly desired advancement in democracy, science and other sectors, educational managers must see to it that teacher education curriculum and others are improved to accommodate critical thinking skills. The purpose of any teacher training is to equip student teachers with necessary skills to enable them train youths to become human capitals useful to themselves and the nation. Such skills include knowledge acquisition, practical skills and the master of all, ability to think for themselves and use those skills to arrive at reasonable conclusions and actions.

This study will therefore discuss the concept of critical thinking and its skills. It will examine the quality of past semester questions from the Faculty of Education, University of Ilorin, using Bloom's taxonomy of educational objectives. It will highlight the values of critical thinking, factors responsible for its poor use in teacher education at the higher education level and the need for it. It will also explore the strategies for teaching critical thinking as well as the possible challenges. It will finally make recommendations for overcoming the challenges.

CONCEPT OF CRITICAL THINKING

Critical Thinking (CT), generally speaking is a universal exercise that man engages in at one point or the other depending on the Situation and decision he has to make. The skill(s) of doing so is however not universal as some individuals are more proficient in it than others. The skill(s) can however be taught and learnt.

The introduction of Critical Thinking Skills (CTS) into higher education was traced to the 1980 Rockefeller Commission on the Humanities recommendation that it be included in the US office of Education's definition of basic skills. By 1985, three Universities in the US were offering CT in Master of Arts (MA) programs. At the California State University, the College Board made it one of the six basic skills to be included in their curriculum (ERIC Digest, 1988). Besides, the issue of CT has also received the attention of many researchers and reputable learned journals.

Critical thinking has received a lot of attention from scholars and the literature is wide. In the process, it has generated many definitions. WTRC (2006) defined it as the intellectual disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing and or evaluating information gathered from or generated by observation, experience, reflection, reasoning (WTRC, 2006). Also, conceived it as the intentional application of rational, higher order thinking skills, such as analysis, synthesis, problem recognition and problems solving, inference and evaluation (WTRC, 2006). Schafersman (1991) defines it as correct thinking in the pursuit of

relevant and reliable knowledge about the world. According to the Centre for Critical Thinking, critical thinking is thinking that assesses itself while it is simply as making reasoned judgment (WTRC, 2006).

Critical thinking is thus conceived as synonymous with higher order thinking, a concept that was generated by learning taxonomy proponents like Bloom. The concept of higher order thinking was part of education reform, which is based on the idea that some types of learning require more cognitive processing than others but also have more generalized benefits (ERIC Digest, 1988). For instance, in Bloom's taxonomy of educational objectives, the skills of analyzing, synthesizing and evaluation are seeing as of higher order than simple recall and understanding.

Critical thinking is therefore concerned with information processing and can be viewed as a complex, purposive, judgmental (quality) higher order reasoning, which is usually devoted to problem solving and decision making. The goal is always to reach sound conclusions based on credible premises.

LECTURERS' CONSCIOUSNESS OF CRITICAL THINKING

In order to determine the lecturers' consciousness of critical thinking, a survey of past semester examination questions of the Faculty of Education, University of Ilorin, from 1990s to 2009, both undergraduate and postgraduate, was carried out. A total of 40 question papers each, covering 251 and 186 questions for undergraduate and postgraduate levels respectively was analyzed, the results are presented in Table 1 and 2.

For the purpose of analysis, questions demanding define and list were considered as measuring recall while explain and discuss measure understanding, design is for application of knowledge, compute/calculate/determine/compare and contrast were taken to measure analysis. For synthesis,

Table 1: Analysis of past undergraduate semester questions from the Faculty of Education, University of Ilorin, based on Bloom's taxonomy

Learning objectives	Question	
	Frequency	%
Recall	78	31.1
Understanding	143	56.9
Application	10	4.0
Analysis	12	4.8
Synthesis	1	0.4
Evaluation	7	2.8

Table 2: Analysis of past postgraduate semester questions from the Faculty of Education, University of Ilorin, based on Bloom's taxonomy

Learning objectives	Question	
	Frequency	%
Recall	62	33.3
Understanding	91	48.9
Application	14	7.5
Analysis	10	5.4
Synthesis	1	0.5
Evaluation	8	4.3

questions that demand identifying a research problem and preparing a research report on it was considered while evaluation was measured based on questions that demanded justifying.

The findings showed that there was a lot of emphasis on recall and understanding at both levels (88.0 and 82.2% for undergraduate and PG levels respectively), whereas the higher order questions received very minimal attention (12.0 and 17.8%, respectively). The findings indicated poor level of awareness of the need by lecturers to facilitate CT in their lectures and examinations.

FACTORS LIMITING CRITICAL THINKING IN TEACHER EDUCATION PROGRAMME AT THE TERTIARY LEVEL

There is a general consensus that teacher education is the bedrock of any educational system. It is the primary determinant of quality education (Isyaku, 2002). One can almost say tell me the quality of your teacher training and I will tell you the quality of your educational system. Ijaiya (1996a) found from a study on skill training in teacher education that skills needed to be developed by prospective teachers on lesson delivery and lesson evaluation (through appropriate questioning). Likewise in a study on factors influencing the management of teaching practice by Alabi (2000a), it was found that inadequate knowledge base by teacher educators had negative impact on the development of effective teaching skills by student-teachers. Among important methods of development and subsequent application of teaching skills-critical thinking inclusive, are adequate exposure to the different disciplines of education such as the philosophy, sociology, psychology and management of education and teaching practice supervision (Ijaiya, 1996b; Alabi, 2000b). In the same vein, Alabi (2005) submitted that staff development programmes are vital to staff performance within the school system. The development programmes enhance development of appropriate teaching skills in school personnel towards school effectiveness. On the improvement of practical components of teacher education curriculum, lesson analysis technique was advocated (Ijaiya, 2008).

A sad commentary on formal education however, higher education included, is that students have been reduced or have reduced themselves to mere passive recipients of information. Education has become certificate-oriented and reduced to number of credit, five in Nigeria and some other countries, even three in others (English, Mathematics, Science and two others). Gone are the days when students put up strong arguments in class or question their teachers' judgments or solutions to problems. Students now simply wait to copy ill-digested notes. At the tertiary level, lectures have become increasingly one-sided and teacher-centered. There is limited communication between the lecturer and students and among students in large classes. Opportunity for questioning and classroom discussion is severely hampered.

As Africa struggles to improve access to education, quality seems to have taken flight under the yoke of over population and under-funding of the sector by many countries. The fallout is commercialization of education for internally generated revenue by Colleges of Education and universities (Ijaiya, 2008; Mayanja *et al.*, 2007). This had led to the lowering of standard while many teachers produced in recent time are severely limited in intellectual skills especially critical thinking skills. This has produced ripple effect throughout the educational system and in other sectors of development, contributing to a perpetual state of under-development in many African countries. In Nigeria, for instance, there has been serious complaints about the quality of teachers being produced especially their poverty of knowledge and skills and increasing the duration of the course by one more year was suggested as solution. The duration is however not the problem (Ijaiya, 2008). What is lacking in the curriculum is critical thinking skill. Teachers need it to

prepare good scheme of work and lesson notes, select appropriate content, methodology and instructional materials, organizing the class, set thought-provoking questions, respond to questions, teach critical thinking skills, etc.

Other factors include:

- Over-emphasis on knowledge and recall at the expense of reasoning
- Excessive use of objective questions at the lower levels. Emphasis is even shifting to computer based testing at the tertiary level which encourages factual questions
- Over-crowded lecture rooms given little or no time for useful interaction and questioning
- Lecturers' work-overload and role conflict due to shortage of personnel
- Lack of emphasis of critical thinking in the various course contents
- Poor knowledge of CT by lecturers
- Poor training of students from the lower levels of education in critical skills
- Over-emphasis on certificate rather than skills acquired
- Over reliance on lecture method without the old tutorial classes

In addition, tertiary institutions, universities, polytechnics and colleges of education particularly in Nigeria pay little attention to co-curricular activities that promote critical thinking among the students population such as quiz and essay competitions, debates, public lectures and seminars by students, etc. Students on their part, pay more attention to social gathering, dancing and drumming, etc. At a personal level, many now spend more of their spare time listening to music from their handsets, even during lectures, instead of engaging themselves in productive activities. If student teachers lack CT skills, what would they teach their future students?

NEED TO TEACH CRITICAL THINKING SKILLS AT TERTIARY TEACHER EDUCATION LEVEL

Critical thinking skill is not an isolated skill but rather one with a wide applicability. It is a skill needed by all leaders, followers, professionals, businessmen, market women, young and old, men and women, in business thinking, teaching thinking, medical thinking, personal thinking, etc. For teachers who are entrusted with producing future leaders and manpower for every nation, it is even quintessential.

The world today faces many paradoxes. For instance, on the one hand is a world witnessing knowledge explosion in science and technology, while on the other hand, are schools generally falling in standard. Another example is a world relishing Information Communication Technology (ICT) products and yet getting poorer economically and understanding each other less with peace getting more elusive. The world needs more critical thinkers in all spheres including emerging democracy especially in Africa for a more peaceful and progressive society. Schools also need to braze up for teaching critical thinking to enhance the study of science and technology. The current global knowledge explosion in virtually all fields could not have been possible without widespread CTS. It is also necessary for protection of human rights, professional conduct good governance social justice .and research ethics (Nassor and Vitikainen, 2009).

At school level, students now submit sub-standard projects and seminar papers that give supervisors hard time. Many do not attempt to participate in seminar discussions or make meaningful contribution even when prompted. Some find it difficult to interpret simple questions. These are evidence of poor critical thinking skills.

The crux of the matter however, is whether CT is consciously or sub-consciously taught and applied in higher institutions, particularly in teacher education.

The teaching of CTS will promote quality in teacher education:

- It will enable students to ask good questions and reason logically in all subjects. Raising fresh questions will help to advance knowledge in any field
- Students' projects and seminar presentations will be more lively, illuminating and more scholarly
- Students' confidence is likely to increase, their answers would be richer and that can improve their academic performance, thereby curbing the menace of examination malpractice. Class participation will also improve
- It can also promote teachers effectiveness and efficiency as well as reduce wastage in the educational system
- When students become good thinkers, unemployment can reduce with benefits to the individuals and the nation
- The incidence of electoral violence, rigging and other malpractices can give way to more credible elections and better governance as politicians and their party men make more reasonable decisions
- It can also promote self development and improve quality of life

CHARACTERISTICS OF CRITICAL THINKING

Eight characteristics of critical thinking were identified by ERIC Digest, 1988 as:

- Asking questions
- Defining a problem
- Examining evidence
- Analyzing assumptions and biases
- Avoiding emotional reasoning
- Avoiding over interpretation
- Considering other interpretation
- Tolerating ambiguity

Dealing with ambiguity is also considered an important characteristic of critical thinking.

WTRC (2006) also shed light on what is considered to be characteristics of critical thinkers:

- **Dispositions:** Critical thinkers are skeptical, open-minded, value fair-mindedness, respect evidence and reasoning, respect charity and precision, look at different points of view and will change positions when reason leads them to do so
- **Criteria:** To think critically, one must apply criteria. According to Beyer an assertion must be based on relevant, accurate facts, based on credible sources, precise, unbiased, free from logical fallacies, logically consistent and strongly reasoned (WTRC, 2006)
- **Argument:** A statement or proposition with supporting evidence. Critical thinking involves identifying, evaluating and constructing arguments
- **Reasoning:** The ability to infer a conclusion from one or more multiple premises. To do so requires examining logical relationships among statements or data

- **Point of View:** This is about one's view of the world and how it helps to shape one's perception of the world (WTRC, 2006)

STRATEGIES FOR TEACHING CRITICAL THINKING SKILLS

The position of this study is not that critical thinking is completely absent in lecture rooms. At some points, lecturers would have asked questions that demand critical thinking both in science and humanities lectures. However, as mentioned earlier, there is a difference between doing something consciously and doing it sub-consciously without realizing its values. What is being advocated here is that critical thinking skills be taught and utilized consciously during lectures, in the laboratories, home works, term papers, seminar presentations, tests and examinations. Critical thinking is so subtle that instructors fail to recognize it and students fail to recognize its absence (Schafersman, 1991):

Some strategies have been put forward as follows:

- **CATS (Classroom Assessment Techniques):** This is concerned with use of classroom assessment to assess, monitor and thus fostering critical thinking among learners, e.g., the lecturer can ask students to assess their contribution to classroom discussion
- **Cooperative learning strategies:** It involves putting students in groups for brainstorming and discussion but guided by the teacher and students
- **Case study/Discussion method:** It involves presenting a case to students to discuss and allowing them to infer conclusions
- **Use questions:** Reciprocal peer questioning and reader's questioning. The former could be inform of teacher' questions after a lecture or students, which they can discuss in groups and then present to the class. The latter may involve students being asked to raise questions from an assigned reading, some of which can be selected for class discussion
- **Conference style learning:** The approach is to allow students to operate as if in a conference while the lecturer simply facilitates. Students must have prepared well and ask each other questions and discuss
- **Written assignments:** Encouraging students to do written assignments with questions requiring arguments on both sides
- **Dialogues:** They could be in written form whereby students would analyze written dialogues in groups. Another is spontaneous group dialogue in which students can assume roles to play, e.g., a leader, a principal, while observer groups are formed to watch and criticize their actions, opinions, errors in thinking and reasoning, etc.
- **Ambiguity:** The idea is to avoid spoon feeding in the class but give ambiguous information for students to sort out (WTRC, 2006)

It is however important that students first internalize the principles of CT and then be able to apply it effectively on a wide scale.

CHALLENGES OF TEACHING CRITICAL THINKING IN TEACHER EDUCATION

The following are possible challenges to teaching CT in teacher education in Africa:

- Inadequate knowledge base by some lecturers
- Possible lack of agreement among lecturers on which approach to use

- Possible lack of support from cooperating departments
- If not taught at the primary and secondary levels, it may be difficult for students to imbibe; this is the current situation
- Training opportunities may not be available for lecturers
- Possibility of resistance from lecturers especially if it will involve adding credits to over-loaded curriculum and more work
- Cost of reviewing and re-printing the institution's academic brochure

CONCLUSION AND RECOMMENDATIONS

This study made a case for conscious teaching of critical thinking in teacher education noting the importance and strategic position of education and teachers in the development of any nation and particularly in Africa, which has been struggling in the last 20 years or so to wriggle out of the status of under-development through various reforms. The concept of critical thinking and its skills were highlighted. The need to pursue critical thinking in teacher education was supported with an analysis of past questions from a Faculty of education with the finding that most questions set were found to belong to the lower level of recall and understanding while the higher order ones were few. Teachers cannot give what they do not have and for educational quality and development, African youth must imbibe critical thinking. The implementation of CT in teacher education may not be so smooth sailing in the tertiary institutions for reasons earlier highlighted.

It is therefore recommended that CT should be purposely included in all teacher education curricula in Africa as a course of study, may be as part of general study (GNS) and incorporated in all courses. For effectiveness:

- A long term approach should be adopted to prepare lecturers and students fully as well as a university or college wide approach
- Workshops are needed to train lecturers
- Enough funds should be provided for training
- Lecturers need to be sensitized and monitored to teach critical thinking appropriately

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