Innovations

The Roles of School Administrators and Lecturers in Fostering Students' Critical Thinking Skills in Higher Education in Nigeria

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Abstract: This study examined the roles of school administrators and lecturers in fostering' critical thinking skills in students in higher education in Nigeria. Two research questions and two hypotheses guided the investigation. The population of the study comprised universities in south- south Nigeria. A sample of 50 school administrators and 400 lecturers was selected from four universities using simple random sampling technique. Data was collected using a structured questionnaire titled 'School Administrators and Lecturers Perception on their Roles in Fostering Critical Thinking Skills in Students Questionnaire (SALPRFCTSQ)'. Descriptive statistics mean and standard deviation was used to answer the research questions while independent sample t-test was used to the two hypotheses at 0.05 alpha level. The findings of the study revealed that school administrators roles include ensuring critical pedagogy curriculum is implemented, creating enabling environment for the use of inquiry-based learning, provision of institution-based training workshops for lecturers, encouraging regular use of scientific method of teaching and regular motivation of lecturer and lecturers have many roles including providing cognitive activation by assigning tasks that encourages students to persist, encouraging students to ask questions, and asking probing questions during instruction. In addition to enhancing creativity among students by providing practical exercises and asking questions that require students to clarify and generalize. The study recommended that Nigerian government should include critical pedagogy across all disciplines in universities. And encourage lecturers to adopt critical pedagogy teaching by sponsoring them to workshops and conferences for more knowledge on critical pedagogy, improved practices, learning outcomes and relevance of their certificates.

Keywords: 1.Critical thinking skills, 2.lecturers, 4.school administrators, 5.students, 6.Nigeria, 7.roles.

1. Introduction

One of the aims of education in Nigeria is to raise a generation of individuals who can think for themselves and live a self-sustaining life (Federal Government of Nigeria, 2014). This implies that education in the country is focused on students' ability to think critically as they proffer solutions to problems in the education process. For the individual to live a self-sustaining life, he/she must depend solely on himself/herself to accomplish specific tasks and make progress in life (Nwokoye, 2011). The individual must be enterprising and must possess communication, problem-solving and logical thinking skills. Critical thinking skills are one of the very important attributes students must develop and inculcate in order for them to be able to successfully cope with the numerous challenges they face in their learning. Students should be able to effectively handle their real-life activities if they possess critical thinking skills. The real-life activities of learning are carried out by the student herself (self-learning), while the teacher provides information. From the perspective of the pragmatists, nothing is static, arising from the fact that the world changes constantly. Therefore, nothing in the world is permanent or static. As a result, the teacher is to help the student to adjust to the ever-changing world by inculcating critical thinking needed to make use of intelligence to

act successfully in her interest. Students' efforts through their critical thinking can help to improve the situation. Okoh and Omordu (2013, p.45) reiterated Seetharamu's (2008) assertion that "the past was not perfect, the present is not satisfactory, the future is partially controllable". Students' critical thinking ability will enhance their capability of being able to identify knowledge that is useful and practicable in solving life problems.

Critical thinking was advocated by the foremost educationist, John Dewey, in 1910 in his book "How we think". Critical thinking encompasses two components: "good thinking'' and "thinking well" (Pitcher & Soden 2010, p. 237). Students of higher education need to be good thinkers and think well to enhance their successful integration into the 21st-century knowledge-based economy. Critical thinking skills will enhance students' prospect of succeeding in higher education and place of work (Smith and Szymanski, 2013). Students need to possess good critical thinking skills for them to understand new concepts (Choy & Cheah, 2009). Today's world is highly globalized. To be successful, the possession of critical thinking skills is therefore inevitable, if graduates of higher education institutions in Nigeria are to successfully face challenges, proffer solutions to problems and compete globally. Furthermore, for graduates from higher institutions to live a self-sustaining life, they must possess and demonstrate good critical thinking skills. To be innovative, learners must change from their old ways of doing things and adopt new practices of critical thinking (Asiyai, 2020). In all subject areas, students require good critical thinking skills to effectively solve problems to a logical conclusion. For example, in the sciences, students need critical thinking skills to be able to apply certain rules or principles in new situations when solving problems. When writing or discussing research findings students need good critical thinking skills to effectively break down their findings systematically, make inferences and use evidence to support their findings and generalizations.

This study focused attention on the roles of school administrators and lecturers in fostering the development of critical thinking skills among higher education students in Nigeria. The necessity is based on the observation that as higher education becomes increasingly complex, complicated and technical. Students therefore, need critical thinking skills to successfully navigate the challenges that a globalized new world demands so that they can excel career-wise.

Statement of the Problem

Casual observation of the researchers and complaints from some employers of labour seems to imply that some graduates of higher education institutions in Nigeria lacking skills needed to cope with the demands of the job. They complain about lack of skills to analyze, interpret, infer, synthesize, evaluate and draw conclusion. Some higher education students are unable to apply higher-order thinking skills in problem recognition and problem- solving. Even some students display inability to assess statements critically and understand examination questions and hence are not capable of answering questions correctly. Studies have not focused attention on critical thinking and its benefits in Nigeria. This study provides empirical evidence of the roles of school administrators and lecturer in fostering critical thinking skills in students of universities in Nigeria.

Research Questions

This study is guided by two research questions:
1. What are the roles of school administrators in fostering students' development of critical thinking skills in universities in south-south Nigeria?
2. What are the roles of lecturers in fostering students' development of critical thinking skills in universities in south-south Nigeria?

Hypotheses

1: There is no significant difference between male and female lecturers regarding the roles of school administrators in fostering student's development of critical thinking skills.
2: There is no significant difference between Deans and Heads of Department on the roles of lecturers in fostering students' development of critical thinking skills.

Conceptual Clarification and Literature Review

Critical thinking is the active and skilful analysis, application, conceptualization and evaluation of information (Angelo, 1995). According to Angelo (1995, p.6), critical thinking is the "intentional application of rational and higher order thinking skills" to problem solving. Critical thinking has been seen as somebody's ability to discus (Kuhn, 1999; Cansoy, Parlar, & Polatcan, 2018). In education, the topic critical thinking has been of great significance since the time of Socrates. Socrates model sees critical thinking skills as the ability to recognize assumptions, evaluate argument and draw conclusion (Changwong, Sukkamart & Sisan, 2018). Educationists and philosophers recognize critical thinking as a tool for the improvement of students' personal life and employability stand. The ability of a student to think and reason critically has been regarded as an important aspect of education globally. The great philosopher John Dewey recognizes critical thinking as central in education. Critical thinking skills empower students to examine critically all sides of an argument. It enables them to test the soundness of the claims advanced and evidence that underpins the claims. Students engage in numerous academic exercises. These include writing assignments, reports, projects, research, reading and conducting practical exercises. Students need to possess and exhibit critical thinking skills to succeed in performing these academic activities effectively. Educators have long established the imperative of fostering students' critical thinking skills (Paul & Elder, 2014).

Students need good critical thinking skills for daily life (Fisher, 2003), for research (Moon,2008), to prepare students for the work force, critical thinking skills are very significant (Lai, 2011; Sanavi & Tarighat, 2014). The academic activities students engage in demand the ability to understand and successfully interpret and synthesize information by generating new ideas from old topics or concepts. Students can only do this if they possess critical thinking skills. Students who do not possess enough critical thinking skills may not be able to show good understanding of examination questions and be able to organize their ideas meaningfully. The ability of students to apply successfully problem-solving skills and higher order thinking skills before arriving at conclusion in any academic assignment demands good critical thinking skills. The American Philosophical Association in Nordquist (2019) defines critical thinking as the process of purposeful, self-regulating judgment, which process gives reasoned consideration to evidence, contexts, conceptions, methods, and criteria. Critical thinking skills include one's interpretation ability, ability to correctly verify data, and reasoning ability, all involving logic. In education, critical thinking is a liberating and powerful resource in one's private and public life. Critical thinking is the active and skillful analysis, application, conceptualization, and evaluation of information (Nordquist, 2019). An ideal critical thinker is seen as one who is usually inquisitive, thoroughly knowledgeable, trustful of reason, unprejudiced, adaptable, unbiased in evaluation, honest in facing personal biases, wise in making judgments, ready to consider, clear about issues, orderly in complex matters, assiduous in seeking relevant information, sensible in selecting criteria, focused in inquiry and persistent in searching results which are as precise as the subject and the circumstances of inquiry permit (American Philosophical Association, 1990; Nordquist, 2019; Claudette, 2011; Zang, 2003). Critical thinking occurs when students are analyzing, interpreting or synthesizing information, evaluating, applying creativity to problem-solving in an argument or reach a conclusion.

Students who possess good critical thinking skills have a high sense of meta-cognition (Kenney, 2013). Studies have linked critical thinking with students' better academic achievement (Karbalaei, 2012; Rahmi, Alberida & Astuti, 2019). Critical thinking empowers learners to act enthusiastically and capable of applying knowledge and skills learnt to solving personal and life problems (Asiyai & Okoro, 2019). Majority of employers of graduates of higher institutions worldwide seek those who possess good critical thinking skills (Sulaiman, Rahman, & Dzulkifli, 2008; Changwong, et al, 2018). In the 21st century knowledge-based economy, critical thinking is regarded as a fundamental pillar to the successful conduct of any activity (Jones & Pimdee, 2017). Oliver and Utermohlen (1995) summarized the importance of critical thinking to include facilitating students' achievement of better results, increasing ability, creating and evaluating knowledge and formation of right attitude towards life. Critical thinking skills are indispensable for successful personal life and business. Critical thinking ability enables students to clarify, articulate, argue, justify, analyze, conceptualize,

evaluate and draw conclusion (Paul & Elder, 2014, Casiraghi, 2017). While buttressing on the importance of critical thinking, Paul (1995) maintains that it is a means of fighting prejudices, unreasonable assumptions, and irrational habits in arguments. As a result of the importance of critical thinking in education, researchers have advocated making it an important component of teacher education program (Toy & Ok, 2012; Karakoc, 2016; Maltepe, 2016; Arsal, 2017; Kizilet, 2017; Cansoy, Parlar & Polatcan, 2018). Majority of the studies reviewed were conducted in other countries. This study focused attention in Nigerian higher education system.

Methodology

This descriptive survey research design was employed in this study. Using survey research design, only a few group or items are considered as representative of the entire population (Ofojebo, Olibie & Chukwuma, 2015). The population of the study comprised all universities in south-south Nigeria. A sample of 400 lecturers (male = 260, female = 140) and 50 school administrators (Deans = 18, Heads of Departments = 32 was selected using simple random sampling technique from four universities namely Ambrose Ali University Ekpoma, Delta State University Abraka, Niger Delta University, Wilberforce Island, and University of Benin, Benin-City. Data collection for the study was through the use of a structured questionnaire developed by the researcher after extensive review of literature. The questionnaire was face and content validated by two experts who are professors of educational administration in the Faculty of Education Delta State University, Abraka. They scrutinized the items and provided suggestions that were used to modify the instrument before the final draft was produced. The instrument was administered to 10 school administrators and 20 lecturers who did not take part in the study twice within an interval of two weeks. Pearson Product Moment Correlation Coefficient was used to analyze the data collected. It yielded an index of 0.86, thus establishing the stability of the items over time and thus justified the use of the instrument. All the 400 copies of instrument for lecturers administered, 388 were correctly filled and used for data analysis. For the school administrators all the 50 items were returned valid and used for data analysis. Mean and standard deviation was employed to analyze data to answer the research questions. Independent sample t-test was applied in testing the hypotheses at 0.05 alpha level.

Results

The results of data analysis are presented in Tables

Table 1: Mean and standard deviation scores on the perceptions of lecturers on the roles of school administrators in fostering students' development of critical thinking skills

S/N	ITEMS	Mean	SD	Remark
1	Ensuring that relevant curriculum that enhance student development of critical thinking skills is designed and properly planned for the school	3.10	0.604	Agreed
2	Regularly reviewing the curriculum in line with critical pedagogy	2.92	0.81	Agreed
3	Encouraging regular use of the scientific method of instruction by lecturers	2.82	0.66	Agreed
4	Supporting lecturers' professional development	2.86	0.57	Agreed
5	Helping lecturers to improve their skills through institution-based training workshop	2.90	0.60	Agreed
6	Providing regular training for lecturer through sponsorship to international conferences on critical pedagogy	2.98	0.77	Agreed
7	Provision of motivation for teachers	2.82	0.74	Agreed
8	Building critical thinking into all subject curriculum	3.00	0.52	Agreed
9	Creating classroom environment to ease students learning in groups	2.78	0.63	Agreed
10	Creating enabling environment for inquiry-based learning strategies among lecturers and students	3.18	0.46	Agreed

KEY: 2.50 = Benchmark. Mean score ranging from 2.50 and beyond = Agreed. Mean score from 2.49 downwards = Disagreed. SD = Standard Deviation.

Table 1 shows the responses of lecturers regarding the roles of school administrators in fostering students' critical thinking skills in higher education institutions in Nigeria. All them items recorded mean score above the benchmark 2.50. Therefore all the items represent the roles of school administrators in fostering students' critical thinking skills in higher education institutions in Nigeria.

Table 2: Mean and standard deviation scores on the roles of lecturers in fostering students' development of critical thinking skills as perceived by school administrators

S/N	Items	Mean	SD	Remark
1	Creating classroom activities that make students think	3.111	0.670	+
2	Encouraging students to learn in groups	2.933	0.640	+
3	Encouraging students to ask questions	2.870	0.664	+
4	Asking questions that requires students to clarify	3.011	0.811	+
5	Asking questions that requires students to generalize	2.963	0.941	+
6	By using brain storming questions during lesson	3.221	0.900	+
7	Asking questions that requires students to draw conclusion	2.724	0.892	+
8	Encouraging students' solving problems through exploration	2.802	0.822	+
9	Regularly using the scientific method to provide cognitive activation activities to students during lesson	2.943	0.523	+
10	Encouraging students to debate issues in the classroom	2.904	0.542	+
11	Use of problem-solving instructional strategies	3.162	0.603	+
12	Enhancing students' creativity through use of practical approach in teaching	2.884	0.491	+
13	By modeling creativity through knowledge sharing	2.852	0.550	+
14	Building the spirit of inquiry among students	2.944	0.481	+
15	Providing classroom activities that allow students to persist until they figure out the problem	3.30	0.663	+
16	Giving students thought provoking task to perform	3.106	0.562	+
	Average Mean 47.73, 10.213	2.983	0.638	

KEY: + stands for Agreed. SD stands for Standard Deviation

Table 2 shows that all the items (1 to 16) have mean score that exceeded the benchmark mean score of 2.50. These items represent the roles of teachers in fostering students' development of critical thinking skills.

Testing the hypotheses

Hypothesis 1: There is no significant difference between male and female lecturers regarding their roles of school administrators in fostering student's development of critical thinking skills.

Table 3: summary of independent t-test analysis on the roles of school administrators in fostering students' development of critical thinking skills in Nigerian Universities

S/N	Roles of School Administrators	F	Sig	T	Df	Sig. (2-tailed)	Remark
1	Ensuring that relevant curriculum that enhance student development of critical thinking skills is designed and properly planned for the school	0.94	0.45	0.111	448	0.341	Agreed
2	Regularly reviewing the curriculum in line with critical pedagogy	0.73	0.221	0.360	448	0.118	Agreed
3	Encouraging regular use of the scientific method of instruction by lecturers	0.31	0.616	0.19	448	0.251	Agreed
4	Supporting lecturers' professional development	0.29	0.310	0.316	448	0.509	Agreed
5	Helping lecturers to improve their skills through institution-based training workshop	0.34	0.521	-0.26	448	0.711	Agreed
6	Providing regular training for lecturer through sponsorship to international conferences on critical pedagogy	0.55	0.240	-0.421	448	0.108	Agreed
7	Provision of motivation for teachers	0.28	0.621	0.44	448	0.323	Agreed
8	Building critical thinking into all subject curriculum	0.16	0.741	0.16	448	0.405	Agreed
9	Creating classroom environment to ease students learning in groups	0.22	0.335	-0.28	448	0.260	Agreed
10	Creating enabling environment for inquiry-based learning strategies among lecturers and students	0.42	0.504	-0.11	448	0.312	Agreed

Table 3 indicates that the p- value for all the items is greater than the t-value (p>0.05) at degree of freedom (Df = 448). The null hypothesis is therefore retained. Hence there is no significant difference between male and female lecturers regarding their roles of school administrators in fostering student's development of critical thinking skills. This means that male and female lecturers have similar views regarding their roles of school administrators in fostering student's development of critical thinking skills in higher education institutions in Nigeria.

Hypothesis 2: There is no significant difference between the mean scores of Deans and Heads of Department on roles of lecturers in fostering students' development of critical thinking skills.

Table 4: summary of independent samples t-test analysis on the roles of lecturers in fostering students' development of critical thinking skills in higher education institutions in Nigeria

S/N	Roles of Lecturers	F	Sig	T	Df	Sig. (2-tailed)	Remark
1	Creating classroom activities that make students think	0.14	0.62	-0.23	448	0.461	Agreed
2	Encouraging students to learn in groups	0.62	0.504	0.18	448	0.308	Agreed
3	Encouraging students to ask questions	0.22	0.821	0.110	448	0.128	Agreed
4	Asking questions that requires students to clarify	0.21	0.062	0.61	448	0.268	Agreed
5	Asking questions that requires students to generalize	0.72	0.373	-0.17	448	0.774	Agreed
6	By using brain storming questions during lesson	0.31	0.641	0.49	448	0.864	Agreed
7	Asking questions that requires students to draw conclusion	1.01	0.442	-0.15	448	0.437	Agreed

8	Encouraging students' solving problems through exploration	0.48	0.312	0.23	448	0.280	Agreed
9	Regularly using the scientific method to provide cognitive activation activities to students during lesson	0.04	0.502	0.39	448	0.306	Agreed
10	Encouraging students to debate issues in the classroom	0.02	0.623	-0.106	448	0.702	Agreed
11	Use of problem-solving instructional strategies	0.25	0.553	0.73	448	0.413	Agreed
12	Enhancing students' creativity through use of practical approach in teaching	0.12	0.802	0.91	448	0.122	Agreed
13	By modeling creativity through knowledge sharing	0.40	0.312	0.70	448	0.290	Agreed
14	Building the spirit of inquiry among students	0.66	0.844	-0.16	448	0.313	Agreed
15	Providing classroom activities that allow students to persist until they figure out the problem	0.83	0.516	1.18	448	0.623	Agreed
16	Giving students thought provoking task to perform	0.52	0.331	0.22	448	0.331	Agreed

Table 4 indicates that the p- value for all the items exceed the t-value (p>0.05) at degree of freedom 388. The null hypothesis is therefore retained. Hence there is no significant difference between mean scores of Deans and Heads of Department on roles of lecturers in fostering students' development of critical thinking skills in south-south Nigerian universities. The implication of this is that deans and heads of departments did not differ in their opinions on the roles of lecturers in fostering students' development of critical thinking skills in south-south Nigerian universities.

Discussion

The finding for the first research question revealed that school administrators can foster students development of critical thinking skills by creating enabling environment for inquiry-based learning (mean = 3.18, SD = 0.46), proper design and planning of relevant critical thinking curriculum (mean = 3.10, SD = 0.60), sponsoring lecturers to international conferences on critical pedagogy (mean = 2.98, SD = 0.77), building critical thinking into all subject curriculum (mean = 3.00, SD = 0.52), regular curriculum review in line with critical thinking pedagogy (mean = 2.92, SD = 0.81), organizing institution-based training workshops for lecturers on critical pedagogy (mean = 2.90, SD = 0.60), encouraging lecturers to regularly use the scientific method of instruction (mean = 2.82, SD = 0.66), supporting professional development of lecturers (mean = 2.86, SD = 0.57), providing motivation to lecturers (mean = 2.82, SD = 0.74) and creating an environment to ease students learning in groups (mean = 2.80, SD = 0.63). the findings proper designing and planning of relevant lends credence with Asiyai and Okoro (2019) who reported that with review and designing of higher education curriculum in line with 21st century skills including critical thinking, technical, problem-solving and communication skills the functionality of higher education institutions in Nigeria could be assured. The finding on the use of scientific method of teaching is in agreement with Kek and Huijser (2011) and Zhou, Huang and Tian (2013) they found that through engagement of students using scientific approach they developed critical and reflective thinking skills. Using active engagement and problem-based teaching strategies, prompts students to take responsibility for their learning while the teacher provides guidance and facilitation. Sponsoring lecturers to attend international conferences and other professional development programmes would be a good avenue for them to interact with experts on critical pedagogy and learn and thus improve practice. This finding have the supports of Asiyai (2020) who noted that teaching of critical

thinking skills is a best practice for tertiary institutions in enhancing quality of outputs and Asakereh and Weisi (2018) who found that critical pedagogy is a sure model for raising the quality of tertiary institutions.

For the second research question, the finding showed that lecturers could foster students' development of critical thinking skills in higher education institutions through: providing classroom activities that allow students to persist until they figure out the problem (mean = 3.30, SD = 0.663), the use of brain storming questions during lesson (Mean = 3.221, SD = 0.900), the use of problem-solving instructional strategies (Mean = 3.162, SD = 0.603), creating classroom activities that make students to think (Mean = 3.111, SD = 0.674), asking questions that require students to clarify (Mean = 3.012, SD = 0.811), asking questions that requires students to generalize (Mean = 2.963, SD = 0.941), building the spirit of inquiry among students (Mean = 2.944, SD = 0.481), regular use of scientific method of teaching to provision cognitive activation to students (Mean = 2.943, SD = 0.523), encouraging students to debate issues in the classroom (Mean = 2.904, SD = 0.543)and encouraging learning in groups (Mean = 2.933, SD = 0.640), encouraging students to ask question during lesson (Mean = 2.870, SD = 0.664), modeling creativity through knowledge sharing (Mean = 2.852, SD = 0.0550), and encouraging students to solve problems through exploration (Mean = 2.802, SD = 0.822). Activity-centered curriculum facilitates students' creative capability and allows students to explore, solve and discover new aspects of knowledge, and expedite development of critical thinking skills. Students need freedom in their learning. Thus, through projects, discussion, collaboration and other practical activities that involve the application of knowledge, they are allowed to display their free initiatives and intelligence in solving problems. Students should be encouraged to ask questions on the 'why' and 'how' of things.

The finding lends credence with Kek and Huijser (2011) who reported that through problem-based learning students' development of critical thinking improved. Arsal (2017 found that inquiry based learning enhanced students critical thinking disposition and improved learning outcomes. Changwong, Sukkamart and Sisan(2018) reported that the development of critical thinking skills among students in Thai improved through regular problem solving activities in their classrooms. Furthermore, the finding is in consonant with Praetorius et al, (2018) who found that critical thinking is fostered through teachers asking challenging questions requiring higher-level thinking among students. The dialectic method encourages students to be actively involved in academic activities during the teaching and learning process (Okoh and Omordu, 2013). This approach not only encourages students to ask questions during instruction in the classroom but propels them to attempt to provide answers to the questions they raise. Teachers can help students develop critical thinking skills by motivating them to ask critical and thought-provoking questions as well as analyzing and evaluating events critically rather than nurturing them as passive recipients of knowledge (Mason, 2007; Asakereh & Weisi, 2018).

Conclusion and Recommendation

This study examined the roles of school administrators and lecturers in fostering critical thinking skills development in students using four universities in south-south Nigeria. From the findings of the study school administrators can foster critical skills by creating enabling environment and encouraging the use of teaching methods that encourage active engagement of students in activities and ensuring review of curriculum in line with critical pedagogy. Lecturers could foster critical thinking skills development among students through employing activity-centered teaching methods where students explore knowledge individually and in groups to enhance their adequate critical thinking skills and puts them in a better stand of employability. The authors conclude that Nigerian higher education could be made more globally relevant through the teaching of critical thinking skills across all disciplines in higher education institutions.

Recommendations
1. Lecturers should adopt teaching methods for facilitating students' development of critical thinking skills in higher education classrooms.
2. Nigerian government should review the curriculum as part of higher education reform to include the teaching of critical thinking to help improve practice, student learning progress, and quality of education in the country, as well as enhancing global relevance.

3. Higher education institutions in Nigeria should place greater emphasis on thinking skills that students can apply in education, career and other engagements in the course of their lifetimes.
4. Nigerian Government should improve professional development of lecturers by regularly sponsoring them to conferences and workshops on critical pedagogy.

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