**PLATO'S DIALECTICS AND FREIRE'S DECODIFICATION FOR CRITICAL THINKING PEDAGOGY IN THE NIGERIAN EDUCATIONAL PRACTICE**



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BY

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**ABSTRACT**

Critical thinking is vital in knowledge acquisition, human development and sustainability. The Nigeria National Policy on Education emphasises the spirit of enquiry and creativity as well as scientific, critical and reflective thinking. However, the current educational practice in Nigeria indicates that teachers are deficient in critical thinking pedagogy, which accounts for the inability of learners to develop reflective thinking. Past studies in Philosophy of Education largely focused on indoctrination and authoritarianism with little emphasis on the utility of philosophical models like dialectics and decodification that could promote critical thinking. This study, therefore, was designed to develop a teaching method that combines critical thinking with teaching and learning processes based on the philosophies of Plato and Freire.

The Philosophical Research Method was employed. The following modes of critical thinking were adopted: speculative, to identify the major concepts; analytic, to critique the concepts of pedagogy and Nigerian educational practice; and prescriptive, for presentation of the theoretical approaches. Plato's dialectics and Freire's idea of decodification were chosen for their direct link to the practice of teaching. These models were critically analysed.

Indoctrination in teaching is a process whereby teacher lures learners to accept ideas, while authoritarianism is forcing teacher's idea on learners. Both pedagogies do not encourage creativity. Freire described such practice as a form of banking concept of education whereby learners are treated like a receptacle tank for knowledge deposit. Plato's dialectics emphasises mutual dialogue as a channel through which knowledge could be impacted by a triadic cycle of thesis, anti-thesis and synthesis. The process allows teacher and learner to critique curriculum content before drawing knowledgeable conclusion. Freire's concept of decodification in educational practice serves as alternative to the banking concept of education. Decodification implies reading the world with words, that is, problemitising social condition to become subject of dialogue in teaching and learning processes. Both philosophers discouraged the teacher-centred pedagogy attributed to indoctrination and authoritarianism. Learner-centred pedagogy is articulated through praxis that encouraged critical thinking skills. It emphasises that the skill, if properly taught, could be a major catalyst for education to drive development and sustainability. Authoritarianism and indoctrination introduce an autocratic setting, while dialectics and decodification facilitate a democratic ambience in the classroom.

Plato's dialectics and Freire's decodification provide an alternative strategy for the effective deployment of critical thinking in teaching and learning. These pedagogic models could assist both teachers and learners in knowledge building by changing the orientation from teacher-centred to learner-centred pedagogy.

**Keywords**: Critical thinking pedagogy, Indoctrination and authoritarianism models of teaching, Dialectics in teaching, Decodification in teaching, Democratic education

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# CERTIFICATION

I certify that this work was carried out by Kassim  Awoyemi **Oyewumi** in the Department of Early Childhood and Educational Foundations, University of Ibadan, Nigeria.

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## DEDICATION

The research work is dedicated to **Professor Oluremi Ayodele-Bamisaiye,** an erudite and immaculate scholar, for her services as a renowned matriarch of Philosophy of Education in Nigeria and a source of my inspiration to loving Philosophy of Education as a chosen career.

# Table of Contents

## CHAPTER ONE

## INTRODUCTION

### 1.1    Background to the study

Thinking is an exclusive human feature that distinguishes humankind from other higher animals. Other animals respond to situation through reflexive behaviour which is psychological disposition. Thinking assessment is only possible through verbal or sign expression which is majorly a human quality. This was substantiated by Oladipo and Adedeji[1] that every human being is endowed with thinking ability. In other words, all human beings are thinkers because it is an essential human quality for survival in life; but not everyone is a critical thinker. Critical thinking as an advanced form of thinking and necessary skill to be acquired has been supported by scholars' that it should be learnt and used. Hobbes[2] submitted that reasoning is not innate, but something to be developed by an industry such as school. Similarly, Hirst and Peters[3] argued that critical thinking does not happen by chance and that it is not some dormant seeds that flowers naturally. In corroboration, Babarinde[4] asserts that human beings are not born with logic and it is not just acquired through experience and maturation. Therefore, the skill has to be taught and learnt. It usually aids development through creativity. Critical thinking is defined as higher order thinking which involves using a number of different advanced thinking skills focuses on thought; it looks at how facts are proven, arguments are formed, conclusions reached, not just what the facts, argument or conclusion may be[5]. Facione[6] gives a comprehensive description of critical thinking as:

> Critical thinking is skeptical without being cynical. It is open minded without being wish-washy. It is analytical without being nit-picking. Critical thinking can be decisive without being stubborn, evaluative without being judgemental, and forceful without being opinionated.

Critical thinking is a quintessential for education and this is why it attracts recognition in education practice. The National Policy on Education (NPE) which is a Nigerian

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[1]Oladipo and Adedeji, (Eds.) *Philosophy, Logic and Issues in science and technology.* Ibadan: Hope publications. 2011. P13

[2]Russell, B. 1961. Hobbes' leviathan. *History of western philosophy*. P534

[3]Hirst & Peters. 1970. *Logic of education*. P31

[4]Babarinde, S. A. 2006. The link between everyday reasoning and scientific research and theory

[5] Babarinde and Oladunjoye. 2016. Rethinking aims, purpose and direction of education for liberation and true development. P101-102

[6]Facione, P. A. 2011. Critical thinking: what it is and why it counts. Retrieved July 14, 2016@www.student.uwa.edu.au

government policy statement on education emphasized the importance of critical thinking. Thus, the policy statement in its objectives of education at various levels advocates for inclusion of critical thinking. Such advocacy is that, the quality of instruction at all levels of education should be one that inculcates respect for the worth and dignity of the individual and faith in man's ability to make rational decisions[1]. Also, in the objectives of basic education, it is stated that education should inculcate values and raise morally upright individuals capable of independent thinking and who appreciate the dignity of labour[2]. Similarly, in the objective of early childhood and pre-primary education, education provided should inculcate in the child the spirit of enquiry and creativity through the exploration of nature, the environment, art, music and the use of toys[3]. To further underscore the importance of critical thinking in knowledge acquisition, the National Universities Commission (NUC), included a general study courses (GSE), which comes under different titles; for instance, 'Philosophy, logic and human existence', Philosophy and logic or argument and critical thinking as part of the benchmark courses to be studied at undergraduate level before graduation. The reason for this inclusion is for Nigerian education system to produce graduates with ability to think correctly and creatively. All these references affirmed that critical thinking is embedded in the curriculum but it seems as if the means of integrating critical thinking is not felt in the actual educational practice.

Apart from the policy statement on the importance and need for effective integration of critical thinking into learning activities, the idea was further supported by the views of scholars. O'Conor[4] postulates that being critical is one of the aims of education among other aims such as providing men and women with the minimum of skills necessary for them to take their places in the society and seek further knowledge and so on. Similarly, Ogunyiriofo[5] Ogunyiriofo[5] in his thesis titled, 'A Philosophical Model for Teaching Critical Thinking to Student Teachers in Tertiary Education', identified two causes of ineffective use of critical thinking as conformity syndrome and authoritarian model in teaching and learning. In the same vein, Nduka[6] called for the replacement of indoctrination and authoritarianism with critical spirit by encouraging students to experiment, ask questions and engage in critical discussion. In Ogunyiriofo's study, the model seems too broad as philosophy has various

[1] FME. *National Policy on Education 6th Edition*. Nigeria: NERDC. 2013. P2
[2] *Ibid*. P4
[3] *Ibid*. P5
[4] D. J. O'Conor. *Introduction to Philosophy of Education*. 1957. P100
[5] V. N. O. Ogunyiriofo. A Philosophical Model for Teaching Critical thinking to Student Teachers in Tertiary Institutions of Education. Ph.D Thesis, University of Ibadan. 1991
[6] Nduka, A. O. 1974. "African Traditional System of Thought and their implication for Nigerian Education

approaches to solving problems while Nduka just made a call and no specific method was suggested to achieve the kind of teaching or method called for. Kneller says that one of the reasons why people go to school is to learn how to think clearly and correctly[1], among other reasons of being well informed and exposed. From the submission of Kneller, the school should be an intermediary between knowledge and learners' acquisition. It then follows that any place called school should be able to assist the learners to think critically and correctly.

Critical thinking and its relevance to man, development and knowledge acquisition had been a vital issue that attracted discussion even among the ancient and contemporary philosophers. Thus, Socrates, Aristotle, Kant, Descartes including Plato and Freire whose ideas were used as theoretical framework for this study, have something to say about critical thinking and education. Immanuel Kant, a German philosopher was of the view that thinking when sufficiently trained, could even take control over realms to which we normally believe it has no access. In his book *Critique of Pure Reason* shows the relevance of logical thinking. Kant[2] shows the relevance of thinking in epistemology. He opines that reason and sensory experience are united as sources of knowledge, and that reason must give form to what sensory experience provides as content. If separated according to Kant, they are nothing and neither of them by itself provides us with any experience or knowledge. This analogy was well captured in one of the Kantian maxims that "Thoughts without content are empty; intuition without concepts are blind." He discussed the idea under what he called transcendental investigation of reason which enables us to formulate the conditions under which not only our knowledge of objects is possible but also of our own self-knowledge.

Also Rene Descartes, a French philosopher, describes thinking in a broad way as doubting, understanding, affirming, denying, willing, not willing, and imagining, having sensory perceptions. To Descartes, thinking is so important that even man's existence depends on his ability to think. This was expressed in his popular 'cogito, an expression in Latin words, "Cogito ergo sum", which means 'I think, therefore I exist." The principle expounded here is known as methodical doubt of Descartes where he explains that for one to reach knowledge a priori, the being should start from doubting everything, including himself. Descartes says, 'I concluded that I was a substance whose whole essence or nature resides only in thinking, and which in order to exist has no need of place and is not dependent on any material thing[3]'. He also proves the profound relevance of thinking to the life of human beings, by giving four steps leading to knowledge through thinking. These are: one should

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[1] Kneller, G. F. 1976. *Logic and Language of Education. New* York: John Wiley Inc.
[2] Immanuel Kant, *Critique of pure reason*
[3] Op cit

never accept anything as true if not incontrovertibly known to be so. Two, divide all the difficulties under examination into as many parts as possible. Three, to conduct thought in a given order; beginning from simplest to the complex and to undertake enumerations to be sure to have left nothing out.

In African philosophy as well, the importance and effectiveness of critical thinking and critical pedagogy as a means of teaching young generation is not neglected. Some Yoruba witty sayings, proverbs, brain teasers, and so on are used in child's education. These form a quintessential part of indigenous education. It is axiomatic in Yoruba indigenous education that proverbs are the horses of conversation, when an idea is lost; it is searched for with the aid of proverbs and this constitutes a formidable intellectual exercise. Fafunwa[1] submits that proverbs and riddles are used as media for developing the child's reasoning power and skill in decision making. He further points out that puzzle and tongue twisters represent another set of intellectual exercises[2]. Among the riddles used by the Yorubas to train the intellectual and critical thinking ability of a child is an analogy of a man who needs to cross a river while traveling with some tubers of yam, a goat and lion. How does he cross the river? Response to this kind of question requires critical thinking to solve the puzzle which contributes to building the thinking ability of a child.

In another study, Olu-Owolabi[3] posited that only a critical and rigorous enquiry can put a society on the path of genuine and sustainable transformation. In other words, transformation and national development can only occur when students are inquisitive and ready to challenge vague and bleak ideas. It is then that the nation can move further from being consumer of finished products to producer of goods themselves. Critical thinking if well integrated into educational practice could also promote the culture of rationality and put emotional disposition at bay especially on matters concerning religion. Insecurity might have become established in Nigeria as a result of emotional approach to issues at the expense of reason. For instance, religious adherents in Nigeria are rather being indoctrinated instead of being educated on matters of collective responsibility in their respective places of worship. It should be noted that the philosophy of religion demands rational input in the interpretation and understanding of the scriptures.

In interpersonal relationship, critical thinking does not allow emotion to becloud reason such as the case of Cythia Osokogu; a postgraduate student in one of the Nigerian

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[1] Fafunwa, A. B. 1974. *History of education in Nigeria*. Ibadan: NPS Educational Publishers Ltd.
[2] ibid p.15
[3] Olu- Owolabi, K. *My People Perish for Lack of Philosophy*. University of Ibadan Press, 2011.

universities who was reported killed by her lover whom she met on *Facebook*[1].A modicum of criticality might have saved Cynthia's life because a critical person does not instantly believe everything he is told. Similar scenario of dearth of critical thinking in social interactions even among the elites is how people share information on other social media like *WhatsApp, Twitter* and so on without scrutinising the information to be sure of their authenticity and rationality. These instances show how ineffective the use of critical thinking could be in the society.  However, thinking may not be useful until it becomes critical and aimed at solving human problems. Anyone who lacks critical thinking is vulnerable to destruction and deceit. In other words, one who is not critical in thinking can easily fall prey to an unsuspected cheat. A non-critical mind believes anything he is told. He relies so much on belief than facts. Nevertheless, the teaching of critical thinking is one thing, and the use is another. Learners' failure to apply critical thinking in their dealings does not imply that the skill is not taught. This implies that even in the existing curriculum, critical thinking is embedded in some subjects offered by students in schools. Yet, it does not reflect in their day to day activities like inter-personal relationship. Thus, critical thinking needs a strong disposition apart from the acquisition of the skill. Therefore, the study is premised on the notion that critical thinking should be properly deployed in teaching and learning situations to produce more rational individuals.

On the bases of the foregoing, it is apparent that education has the mandate of producing critically minded individuals through appropriate and effectual teaching pedagogy, to be employed in teaching by the teachers. The teacher and the act of teaching are quintessential parts of the teaching and learning processes. So, for teaching to be effective and beneficial, it should be accompanied with appropriate and effective pedagogy. Teaching pedagogy implies the skills of teaching employed by teachers to pass instructions to learners in the process of teaching and learning to achieve the stated educational goals. More so, National Policy on Education further states that the goals of Teacher Education, which is central to the theme of this study, includes the encouragement of the spirit of enquiry and creativity in teachers[2] while teachers are even being advised to continue to take cognisance of changes in methodology and in the curriculum.

It could be asked that how can critical thinking be integrated into teaching and learning processes? In other words, how can critical thinking be deployed into teaching and learning to achieve the identified goals of education as desired by the National Policy on Education?

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[1] Egbe, R. 'Cynthia Osokogu's Killers to die by Hanging'. The Nation Nigeria Newspaper, Friday 24 March, 2017.
[2] *National Policy on Education 6th Edition*. 2013  p28

Critical thinking, through the philosophical models of two great philosophers - Plato and Freire - could proffer a paradigm that could engender critical thinking in teaching and learning. In education, there are several teaching methodologies designed to facilitate teaching and learning processes. Among these methods are lecture method or conventional method, project method, play way method, dramatisation method and so on. Critical thinking pedagogy as a new teaching method in educational processes might aid education to achieve the mandate of developing appropriate skills in learners such as: mental, physical and social abilities and competencies to empower the individual to live in and contribute positively to the society[1]. Critical thinking as a skill is expected to lead to creativity which Akinboye[2] describes as the tool that is specifically designed to incorporate the skills that will make education relevant, functional and aids employability for learners. The creativity tendency that could be acquired through effective deployment of critical thinking pedagogy would enhance individual to live in and contribute positively to the society.

Critical thinking skill is called problem solving by some scholars, and it involves knowing, understanding, analysing, synthesising, applying and evaluating an idea or problem. In other words, critical thinking is a big umbrella under which other skills are subsumed. Jimoh[3] identifies four aspects of critical thinking namely: abstract thinking, creative thinking, systematic thinking and communicative thinking. This is what the rationalist philosophers called 'apriori' knowledge. Creative thinking on another hand means thinking out of the box; that is innovation. In other words, ability to be creative with what one is given, either an idea or corporeal object that could be transformed into another useful product. While systematic thinking is described as a process of organising thoughts in logical steps. It is when thoughts are logically presented such that it makes meaning or is sensible that it can be judged as being systematic. Critical thinking also develops communicative skill by being precise in giving ideas to people, especially in interpersonal relationship that covers day-to-day thinking. It can then be established that critical thinking skill is an enabling circumstance where other skills can thrive and therefore very necessary for the educators to be skilled in the appropriate use of critical thinking while teaching. Similarly, Elder and Paul[4] describe critical thinking as the ability and disposition to improve one's thinking by systematically subjecting it to intellectual self-assessment. This implies that to be a critical thinker, one should possess the dispositional

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[1]*National Policy on Education 6th Edition*. 2013 p.2
[2] J. O. Akinboye, *Educational Innovation and Enterpreneural Skills Learning*. Ibadan: CYFO Behaviour Services Ltd. 2016. P. viii
[3] A. Jimoh, The Role of Critical Thinking in Problem Solving in Organisations. Paper presented to the Personnel Psychology Students' Association, University of Ibadan. 2013.
[4] Elder and Paul. Critical Thinking Development: A Stage Theory. 2010

quality for critical thinking, as well as intellectual self-assessment, which is a property of the mind.

Critical thinking, as viewed by Freire and others, is a way of life rather than a narrow concept of manner of thinking[1]. This tendency calls for a dispositional trait to critical thinking beyond the acquisition of the skill. Burbules[2] alludes to being critical as thinking in new ways arising from an interaction with challenging alternative views. To be critical therefore, is a function of collective questioning, criticism and creativity. Hence, there is a need for an incorporated pedagogy for teachers to educate learners to attain this intellectual self-assessment level.

Nevertheless, the intellectual and philosophical roots of critical thinking are traceable ultimately to the teaching practice of Socrates; Plato's master who discovered a method of questioning and demonstrated that persons may have power and high positions 'authority' and yet be deeply confused and irrational. This was supported by the assertion of Elder and Paul[3] that persons are critical thinkers in the real sense of the term only if they display questioning ability and disposition of interrogating authority in all or most of the dimensions of their lives as parents, citizens, consumers, lovers, friends, learners and professionals.  Hirst and Peters[4], therefore suggest that critical thinkers should be in possession of what they termed 'human excellences'. These were to be the qualities of critical and educated persons. The human excellences according to them are imaginative, creative, critical thinking, autonomous, and aesthetic-sensitivity. Similarly, an educated man in the description of Tai Solarin[5], should be autonomous, reflective, critical and capable of making free choices. A person who is critical will not accept what he is told just because of who says it. He would not take authorities too seriously, and would be determined to test things for himself and get convinced before he accepts them. In other words, an educated person should possess critical thinking qualities. In Akinpelu's idea:

> The educated man is to be discovered by his point of view,
> by the temper of his mind, by his attitude towards life and
> his fair way of thinking. He can see; he can discriminate; he
> can combine ideas and see whether they lead; he has insight
> and comprehension[6].

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[1] Burbules, N.C. (1993).  *Dialogue in Teaching: Theory and Practice*. New York: Teachers College.
[2] N. C. Burbules, *Dialogue in teaching: theory and practice*. New York: Teacher College. 1993.
[3] Elder and Paul. Critical Thinking Development: A Stage Theory. 2010
[4] Hirst, P.H. and Peters, R.S. 1970. *Logic of Education*. London: Routledge and Kegan Paul Ltd.
[5] Enoh, A. O.1996. *Main Current in Nigeria Educational Thought*. Jos: Midland Press Ltd
[6] Akinpelu, J. A. 1981. *Introduction to Philosophy of Education*. Nigeria: Macmillan Publishers

The above identified qualities of an educated person could be achieved through effective use of adequate form of pedagogy which promotes critical thinking by the teachers at all levels of education. However, being able to think does not make everyone a philosopher. Despite this limitation though, the propensity of critical thinking cannot be ignored in educational processes. Critical thinking as a skill does not happen by chance, it has to be taught and learnt. People have to be educated to think critically. Critical thinking according to Hirst and Peters, critical thought should include creativeness and autonomy because it is not some dormant seed that flowers naturally. These attributes are vacuous unless learners are provided with the forms of knowledge and experience that enhance critical thinking.

To this end, the nexus between theory and practice in educational institutions is pedagogy, that is, the right forms of teaching skills that are used in schools or formal education settings. Critical pedagogy from sociological point of view implies that there is an unequal social stratification in the society based upon class, race and gender which needs to be corrected. In an attempt to stop this inequality, there is a need to make people aware of the social vices through critical consciousness. The leading proponent of this idea was Paulo Freire, a Brazilian philosopher in his book titled *Pedagogy of the Oppressed.* Critical pedagogies aim towards pursuing a fuller humanity, social emancipation, led by the oppressed such as the poor and women. This is through a dialogic, reflective approach, wherein the teacher is no longer authoritative, but an intellectual who assists students to develop critical consciousness (conscientizacao) of their own oppression and to act on the world as they learn in order to change it[1].

Critical pedagogy is both a way of thinking about and negotiating, through praxis, the relationship among classroom teaching, the production of knowledge, the larger institutional structures of the school, the social and material relations of the wider community, society, and the nation state. Critical pedagogues on the other hand are specifically concerned with the influences of educational knowledge and cultural formations that perpetuate or legitimate an unjust status-quo. Critical education can increase freedom and enlarge the scope of human possibilities and development through effective pedagogy.

The school is a good channel through which critical thinking can be taught to individuals. Besides, school is a place where large audience of youths can be taught to effect

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[1] Westbrook, J., Durrani, N., Brown, R., Orr, D., Pryor, J., Boddy, J., and Salvi, F. 2013. *Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries*. USA: University of Sussex. P11

change in the society. According to Williams[1], schools not only process people, they process knowledge as well. Corroboratively, Giroux[2] says that elements of an educational platform begins with the assumption that schools are essential sites for organizing knowledge, power, and desire in the service of extending individual capacities and social possibilities. In support of Giroux's assertion, Mclaren[3] explains that critical pedagogy is an approach adopted by progressive teachers attempting to eliminate inequalities on the basis of social class and that has also sparked wide array of anti-sexists, anti-racist, and anti-homophobic classroom-based curricular and policy initiatives. Douglas[4] also shows the relevance of critical pedagogy to a society like Nigeria. He contends that critical pedagogy considers how education can provide individuals with the tools to better themselves and strengthen democracy, to create a more egalitarian and just society as demanded by the NPE among the goals of educational institutions in Nigeria. Democracy such as ours needs critical minded citizens to succeed, and this can be achieved through effective use of critical pedagogy at all levels of education.

Hence, the embedded good qualities of critical thinking in philosophy make its relevance germane to education processes. It should be noted however, that thinking in philosophy is a mental activity that is concerned with the correctness of propositions or statements as against the study of the process of thinking which is the concern of psychologists while philosophers are concerned with the product of thinking itself. From the foregoing, the study sees the relevance and possibility of critical thinking and critical pedagogy in enhancing Nigerian educational system towards achieving the national goals as stated in the National Policy on Education. Therefore, as useful and important as the role of critical thinking is to education and to man in general, there is need for investigation into what model can suit the purpose of teaching critical thinking with an effective pedagogy.

The aim of the study therefore, is to construct an effective pedagogy for teaching critical thinking using the models of both Plato and Freire. The study will therefore investigate reasons for ineffective deployment of critical thinking skills through Nigerian educational practice. It will also examine the relevance of critical thinking skill to education and human existence in general. Philosophical model for effective deployment of critical thinking through critical thinking pedagogy would be proposed.

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[1]Williams, R. 2010. What is critical Pedagogy? Retrieved June, 2014 from www.21stcenturyschools.
[2]Giroux, H. 2010. Pedagogy. Retrieved June, 2014 from www.21stcenturyschools
[3]Mclaren, P. 2010. What is critical pedagogy? Retrieved June, 2014 from www.21stcenturyschools?
[4] Douglas, K. 2000. Multiple Literacies and Critical Pedagogies. *Revolutionary Pedagogies- Cultural Politics, Instituting Education, and the Discourse of Theory*. Peter Pericles Trifonas (ed): Routledge.

**1.2 Statement of the Problem**

Critical thinking skill is vital to human and societal development; its effect permeates every spectrum of human life including education and particularly knowledge acquisition. The relevance of critical thinking skill ranges from self-development, intellectual development, interpersonal relationship and educational advancement. However, its process of acquisition through teaching and learning particularly in Nigerian educational practice appears inadequate, as a result of inadequate pedagogy being used to teach the skill. Therefore, there is a need to improve upon the existing pedagogy so as to actualise production of critical conscious individuals who could contribute to the development of the nation through our educational system. Philosophers as well as educational scholars have explored the importance of critical thinking skill and have come up with likely ideas to be followed in the integration of the skill into the educational processes. Previous efforts by educational scholars have enunciated the likely causes of ineffective deployment of critical thinking skill as conformity syndrome and authoritarian model, but no specific measure was proffered as panacea to the educational problem especially in form of teaching. Hence, the current study tries to harness the ideas of Plato and Freire to develop a pedagogy which could address the problem of ineffective deployment of critical thinking skill in learners through teaching and learning processes in Nigerian educational practice. The integration of the model into teaching and learning would enhance learner-centred pedagogy as demanded by the National Policy on Education as self-development and self-fulfilment educational activities.

**1.3 Research Questions**

The study will provide answer to the following research questions.

1.  What is critical thinking?
2.  To what extent is critical thinking relevant to education and practice?
3.  What are the philosophical bases for critical thinking pedagogy in teaching and learning activities?
4.  How could critical thinking pedagogy enhance teaching and learning processes?
5.  How Plato's dialectics and Freire's decodification models of teaching could be integrated to pedagogy?
6.  What steps could lead to acquisition of critical thinking through pedagogy?

**1.4 Scope of the study**

The research covers epistemology and logic of education in philosophy of education. The study explores the historical ideas of Plato and Freire and other philosophical ideas related to critical thinking and education as philosophical bases for the study. It also

examines the area of teaching and learning in Nigerian educational practice to investigate the possible reasons for ineffective deployment of critical thinking through teaching and learning. Conceptual analysis in philosophy of education was explored through the analysis of the concept of pedagogy with emphasis on learner-centred pedagogy.

## 1.5 Significance of the study

This study is significant in that it would contribute literature to reduce the dearth of study on a pedagogical skill that focuses on the development of critical thinking through praxis by teachers at all levels of education in Nigeria. It would also actively cater for the acquisition of critical thinking skills in learners through teaching and learning processes in Nigeria education practice. In other words, it would contribute to the existing teaching pedagogies for teachers to use. It is also unique in the sense that it is a contribution to knowledge, especially in the area of curriculum development from philosophy of education. The likely proposed theoretical approach to the development of critical thinking in learner through teaching and learning activities would meet the demand for pedagogical tool to impart critical thinking in learners by the pedagogues in Nigerian educational practice.

**CHAPTER TWO**

**REVIEW OF RELATED LITERATURE**

**2.1 Some philosophical bases for critical thinking and critical pedagogy**

This chapter presents philosophical bases for the proposed critical thinking pedagogy. This is informed by the aim of the study that centred on construction of an appropriate pedagogy that will be useful to Nigerian educational practice. Hence, the theses of the leading scholars and philosophers in critical thinking and critical pedagogy shall be reviewed as basis for the chosen topic of the study. Thus, the following philosophers explicated extensively on critical thinking and processes of learning in their various treatises: Plato in *The Republic*, Aristotle in *Organon*, Rene Descartes in *A Discourse on the Method*, David Hume in *An Enquiry Concerning Human Understanding*, Immanuel Kant in *Critique of Pure Reason*, John Dewey in *How we think* and *Democracy and education,* Paulo Freire in *Pedagogy of the Oppressed,* Frantz Fanon in *The Wretched of the Earth*. However, the study is to focus on the ideas of two philosophers, that is, Plato and Freire whose ideas have direct link to critical thinking and educational practice.

However, in philosophy and philosophy of education, logic is a veritable instrument in doing philosophy**.** The act of using logic in whatever philosophy is applied to, leads to the idea of critical thinking. In other words, logic in philosophy is the basis for critical thinking. Thus, critical thinking becomes the hallmark of philosophical activities. Just as philosophy permeates all spectrum of human life, there is logic of education and logic in education. An in-depth understanding of these two ideas shows the relevance of critical thinking to education.

Logic in education can be described as systematic arrangement of educational processes or activities such as curriculum, content, pedagogy and evaluation while logic of education can be understood as the procedure to be followed in actual ways of imparting knowledge to the learners. In other words, logic of education is systematic approaches to teaching and learning; for instance, from simple to complex, concrete to abstract and so on. Logic of education is usually the responsibility of the pedagogue. A teacher without adequate knowledge of logic in education or logic of education would rather be a novice or non-professional teacher. Kneller[1] argued that a discipline can be organized logically when the elements of the discipline are related deductively.

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[1] G. F. Kneller. *Logic and Language of Education*. New York: John Wiley & Sons Inc. 1966. P68

Thinking in general is not alien to man. It is generic; either consciously or unconsciously man engages in one form of thinking or the other. This is evident in man's action especially in term of decision or choice making. However, critical thinking in particular can be viewed as an advanced stage of reasoning where critical preference is given over a choice of an action taken. Again in the process of teaching and learning, thinking plays a pivotal role and this has been the concern of philosophers over ages. Critical thinking therefore becomes an issue of interest under education for it to achieve its aim of human development. Due to these reasons, both ancient and contemporary philosophers of education as well as non-education philosophers placed emphasis on critical thinking through the right pedagogy for education to be meaningful and engender development in the society.

This chapter presents some philosophical bases for critical thinking and critical pedagogy upon which the study is anchored. This is informed by the objective of the study that centred on application of critical thinking pedagogy to Nigerian educational philosophy and practice. Hence, the treaties of the leading scholars and philosophers in critical thinking and critical pedagogy shall be reviewed as basis for the chosen topic of the study. In the light of the above, a perceived problem of lack of critical thinking skill orchestrated by what Ogunyiriofo[1] identified as conformity syndrome and authoritarian model among the students calls for study so as to remediate the problem since one of the reasons why people go to school is to acquire certain skills in which critical thinking is an integral part. Hudson[2] affirmed that educational institutions exist primarily, if not exclusively to teach in reason why. In other words, anyone who is certified to have been educated in school is expected to be rational and logical in the manner of doing things. Other skills expected to be acquired through formal education as researches revealed are: effective communication, problem solving and creative thinking skills. One therefore opines that for the great thinkers to have dwelled much on logic suggest the continued relevance of the aspect in philosophy and particularly in the educational processes. Moreover, if such problem had not occurred at one time or the other in the past, the scholars would not have said so much about it. Problems tend to generate reflection and concern to find solutions that are logical and dependable.

The ideas of great thinkers to be studied will serve as basis for the relevance of the area of study in philosophy of education to the modern day educational achievement. Besides, education has been observed to be a tool par excellence to solve any human

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[1] V. N. O. Ogunyiriofo. A Philosophical Model for Teaching Critical thinking to Student Teachers in Tertiary Institutions of Education. Ph.D Thesis, University of Ibadan. 1991

[2] D. W. Hudson. Learning to be Rational. *Proceedings of the Philosophy of Education Society of Great Britain.* Vol. XI, 1977. P.39

problem; thus the infusion of critical thinking pedagogy which in turn would produce rational learners appears to be a right direction towards solving problem of non- critical tendency which militates against achieving the goal of self-reliance as anticipated by the National Policy on Education 2013[1]. However, it could be observed that the Federal Government appreciate that education is a tool par excellence to solve human problems, but failed to give adequate attention to critical thinking pedagogy necessary for achieving self- reliance and academic excellence. Lack of the skill is assumed to be one major factor that inhibits maximum attainment of academic excellence by many students at all levels unlike their few counterparts who excelled in their areas of academic pursuit. This phenomenon also forms a reason why it could be supported that academic standard is falling particularly in Nigeria because many graduates failed to meet up with the certificate obtained. The problem degenerated into reason why some believed that Nigerian graduates are not employable. So, this chapter sets to examine the works of philosophers from the ancient, modern and contemporary periods. Thus, Plato will represent ancient philosophers, Rene Descartes for the modern philosophers and John Dewey and Paulo Freire for the contemporary philosophers.

## 2.2 Logic, Critical Thinking and Education

In understanding the logical ideas of the highlighted philosophers, there is need for background understanding of the concepts with which the ideas are to be related. Logic in general sense means reasoning. A layman sometimes takes logic as tactic used in performing a difficult task. In other words, to a layman, it is a perfect way of performing a herculean task. Also, when things are done or a statement is said correctly, it is judged logical. Submission by leading philosophers like Aristotle affirmed this and it is going to be discussed later in the work. Nevertheless, professionals have tried to define logic in various ways. For instance, Copi[2] defines logic as the study of the methods and principles used in distinguishing good (correct) from bad (incorrect) reasoning. Similarly, Kahane[3] sees logic as an attempt to distinguish between correct (valid) and incorrect (invalid) arguments. Max Black[4] says logic is the study of reasoning. He further explains that special kind of study known as logic is concerned with thinking about thinking. By this he meant that logic is a special kind of mental activity, systematic and above all critical. Closely related to the above

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[1] FGN. 2013. *National Policy on Education* 6th Edition
[2] I. M. Copi. *Introduction to Logic*. London: Macmillan Publishers. 1972
[3] H. Kahane. *Logic and Philosophy*. California: Wadsworth. 1968
[4] Max Black. *Critical Thinking; an Introduction to Logic and Scientific Method*. NY: Prentice Hall

description of logic is Baker's[1] definition of logic as the critical study of reasoning. In Baker's exposition of logic as quoted by Ogunyiriofo[2], Baker explained that logic does not just question what good reasoning is or differences in the correct standard of reasoning and the incorrect one. In most contemporary form, Udefi[3] says logic deals with the basic structures of good reasoning. It studies the correctness or incorrectness and unsoundness of arguments. Logic goes beyond reasoned theory to equip an individual with the reflective technique necessary to transcend reason, to reason why. The element of critical thinking embedded in logic is reason why, whereas critical thinking leads to creative thinking and creative ability which is the key to development which education provides in mankind.

It is evident from these delineations of logic by logicians that the concept connotes ability to detect and differentiate valid and invalid argument, correct or incorrect reasoning. It is also capable of engendering reflective thinking as well as generates creative thinking. This shows that as far as teaching and learning processes are concerned, critical thinking is highly necessary and should be given recognition and priority in the processes of education, so that education can deliver its mandate of producing worthwhile individual in the society. Nevertheless, logic as a discipline derives its meaning etymologically from the Greek word 'logos' which means study, word or discourse. All these are education oriented words; which further shows the affinity that logic shared with teaching and learning processes. Logic is used in philosophy as criteria of differentiating correct from incorrect reasoning through argument. Argument in philosophy does not imply quarrel or misunderstanding as the word is mostly used but a set of reasons given to support or substantiate any proposition given. What then is argument? What are its features and how does it relate to educational processes? Answers to these questions are to provide background knowledge to the position of each philosopher to be reviewed on the use of logic to advance education.

In everyday language, an argument may be interpreted as quarrelling, disagreement or debate. But in philosophy an argument is a serious mental exercise directed at productive reasoning[4]. In another way, argument is defined as a group of propositions (statements) one of which is called the conclusion, affirmed on the basis of the others; which are called premises. An argument is always the smallest unit of argumentation. At least two or more

[1] F. S. Baker. *The Elements of Logic*. McGraw- Hill Book Company. 1965
[2] V. N. O. Ogunyiriofo. A Philosophical Model for Teaching Critical thinking to Student Teachers in Tertiary Institutions of Education. PhD. Thesis. University of Ibadan. 1991
[3] Udefi, A. *Philosophy and Sciences: An Invitation to Interdisciplinary Studies*. Nigeria: Stiriling –Horden. 2010: 59-60
[4] Ogunyiriofo, V. N. O. A Philosophical Model of Teaching Critical Thinking to Student Teachers in Tertiary Institutions of Education. PhD Thesis. University of Ibadan. P199

propositions form argument otherwise it is not an argument. But not all the statements are arguments. Some non-argumentative uses of statements are found in writings such as reports, illustration, explanatory statements, conditional statements, and so on[1]. All these are often confused with argument. Carney and Schear[2] define argument as a sequence of statements together with claim. The sequence is made up of two or more statements and the claim is that one of those statements called conclusion follows in some ways from other statements called premises. Sometimes, this claim is made explicitly and sometimes not. In argument a conclusion is explicitly made by words like 'therefore', 'so', 'hence', 'thus', 'consequently', 'we may conclude[3]' and so on. These are called conclusion indicators at times.

Features of an argument can therefore be identified from the definitions given by scholars. Thus, propositions known as statement in everyday language have premises and conclusion as major features of an argument. Among other features is that if premises are true, then the conclusion necessarily had to be true and vice versa. However, for one to claim that indeed the premises are true, the claim has to be substantiated by presenting reasons or evidences holding that his conclusion is true. Arguments are either deductive or inductive. In logic, an argument is deductive when the conclusion follows from its premises with absolute necessity or certainty. Deduction is the process of moving from general to the specific. In other words, deductive in logic is moving from a proposition describing a condition that holds in all instances to a particular instance e.g.

<div align="center">

All men are mortals,
Socrates is a man,
Therefore, Socrates is mortal.

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While inductive arguments are those in which the premises do not lead to the conclusion with certainty. Induction is based on probability e. g. Peter is drunk most of the time. Here most of the time does not imply all the time. Thus, one cannot conclude with certainty that Peter will be drunk today. Nevertheless, in using logic to advance teaching and learning, logical processes should be involved. It is one thing to study the logical implication; it is another thing to understand the application. So, we move further to explain logical processes before going into the details of evolutional discourse of logic by logicians.

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[1] NTI. Bachelor'sS Degree Programme Manual. Kaduna: National Open University. 2013. p205
[2] J. D. Carney & R. K. Schear. *Fundamentals of Logic*. NY: Macmillan Publishers. P.3
[3] A. C. David & R. Munson, 2000. *The Elements of Reasoning*. Canada: Wardsworth Publisher. P.95S

**2.3 Logical Processes**

In using logic to enhance the processes of education, logical processes should be well understood and adequately applied. A logical process means a set of procedures that the mind follows to attain knowledge. These processes are three namely: simple apprehension, judgement, reasoning and argument. Simple apprehension is the act by which the mind forms the concept of something without affirming or denying it. Judgement in logic is the act by which the mind affirms or denies something of something else. For instance, statement such as- look at that ship- is an example of simple apprehension because the statement has not affirmed anything about the ship. But if one goes further to state that- look at that big ship- implies a judgement due to affirmation of the ship as big. Reasoning and argument is the third stage of logical processes, it is described as the act by which the mind passes from one, two or more judgements to further judgement distinct from the preceding ones but implicitly contained in them[1]. Basically logic is concerned with reasoning and argument.

It is apparent from the descriptions of logic and logical processes that conscious inclusion of logic in teaching and learning pedagogy particularly in Nigerian educational philosophy and practice is necessary to enhance the quality of instruction at all levels of education to be geared towards inculcating acquisition of competencies necessary for self-reliance[2]. As long as there is need for argument classification, clarification and ordering of things and ideas, logic is always necessary. The indispensable nature of logic in human endeavours prompted Otakpor[3] to term logic as the queen of all disciplines no scientist, historian, lawyer, engineer and so on can afford to present their work in a disorderly manner and expected to be taken seriously. To be logical is to be orderly and coherent.

**2.4 Views on Logic and Critical Thinking Pedagogy**

Creativity is a hallmark in development, and for education to be relevant type it should be able to foster development. Development is the intersection point between critical thinking and education. The meeting point of these two concepts was clearly explained in the argument between two major schools of thought in philosophy; rationalism and empiricism. Empiricism posits that knowledge could only be achieved through the sense organs while rationalism argues that without reasoning, no knowledge could be generated. Rationalism argued further that it is reasoning that gives form or structure to the object of study to become knowledge. This implies that it is human mind that gives structure or form to the images sent to it by the sense organs before such becomes knowledge. Education then appears to be

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[1] NTI. Bachelor's Degree Programme Manual on GST 203. P.197
[2] FGN. National Policy on Education 6th Edition. 2013. P.3
[3] N. Otakpor. A Preface to Logic. Benin City: Omone Books.

inseparable from critical thinking if it were to be meaningful, logical and coherent. At any rate, it is important to note that synergy between the two schools of thought will end in excellent knowledge production in the educational settings. Understanding of logic did not just come as intuition but some leading philosophers and scholars have worked on it as foundation for the theory and application of logic into producing rational individual. Among other theories that have relevance to critical thinking in teaching and learning is the constructivist theory of knowledge propounded by Giambattista Vico in 1710. The theory evolved from a Latin phrase '*verum est ipsum factum*' meaning 'to know something, means knowing the parts it is made of and how they have been put together[1] The theory is one that allows learners to generate their own knowledge under the pedagogue's supervision. Critical thinking pedagogy aims at producing well informed individuals who could think for themselves and analyse issues before taking judgement or making decision. Constructivism as a theory in philosophy, psychology and cybernetics as pointed out by Glaserfeld[2], asserts two main principles of which their applications have far reaching consequences for cognitive development and learning which are germane to the theme of this study. The two main principles of constructivist theory is that knowledge is not passively received but actively built up by the cognising subject; and that the function of cognition is adaptive and serves the organisation of the experiential world. However, it has been pointed out by scholars that logical thinking is not an innate quality of any individual, but a concept to be learnt. R.S. Peter[3] and Schofield[4] opine that critical thinking is not the prerogative of any elite. Akinpelu equally supported that critical thinking skill does not come easily or naturally to anybody, it should be learnt. Besides, one of the fundamental aims of schooling is to teach others how to think, not simply to tell them what to think[5]. In order to fulfil this educational obligation of schools, critical thinking pedagogy is necessary in the modern day educational institutions. It is however deducible from the principles of the theory of constructivism that for educators especially school teachers to successfully accomplish their duty, there is need to jettison the old system of teaching which encourages unconnected storing of information or facts and embrace progressive method offered by pedagogy that allows self-discovery through critical reasoning. It is equally important to know that to develop mentally alert individual; one who

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[1] E. V. Glasersfeld. Constructivism in Education. In T. Husen & T. N. Postlethwaite, (eds) The International Encyclopedia of Education, Supplement Vol. 1 Oxford/New York: Pergamon Press. 1989, pp 162- 163.

[2] ibid

[3] H. William. Content and Criticism: The aims of schooling. Journal of Philosophy of Education Vol.29 (1) 1995. P.50,

[4] H. Schofield, *the Philosophy of Education: An Introduction*. London: Goerge Allen and Unwin, 1972. P 235

[5] R. S. Peters, *Authority, Responsibility and Education*. London: George Allen and Unwin, 1973. P48.

can adapt his/her cognition to serve the organisation of the experiential world, the area of his/her reasoning should be developed by creating an enabling environment to develop the skill individually. Since school is a learning environment that is expected to inculcate the habit of critical thinking in learners, the activities that go on there under the supervision of the teacher should give room for self-discovery through critical thinking.

Apart from the above principles, constructivist philosophy postulates that learners should construct their own understanding and knowledge of the world through experiencing things naturally and reflecting on those experiences[1]. This assertion corroborates Dewey's position on reflective thinking as to be discussed later. It is evident from this theory that logic has laid foundation for the development of independent individuals. And since this is part of the aims of critical thinking skill, the theory of constructivism is necessary to facilitate development of critical minded individuals. In other words, among the criteria of constructivist learning theory was that it involves active process through participation by both the learner and the educator. This principle was exactly Freire's position on suggesting problem solving method as against the banking concept of education. Through active participation knowledge is constructed and shaped by experience; and such experience is usually permanent in the learner. It is therefore obvious that constructivist theory also emphasises problem-solving and understanding a process that makes learning real and permanent. Constructivism as a process of instruction, informs the teacher about the adaptation of the curriculum to address learners' suppositions. It is a system that helps the teacher to negotiate goals and objectives of education with the learners. It is a system that poses problem of emerging relevance to students. Constructivism theory; a subsidiary of critical thinking is most appropriate method of teaching sciences because it emphasises hands-on, real world experiences, unlike theoretical approach being used in Nigerian schools to teach sciences as if they are abstract subjects. Besides, it seeks and value students' point of view, that is, both teachers and learners are partners in progress as against the authoritarian method which kills or discourages creative ability of learners. As earlier stated in the background, critical thinking skill is capable of solving interpersonal problems apart from facilitating educational process. Constructivism built social context along the learning content which caters for the social relevance of knowledge acquired.

Despite being students' centre strategy in teaching and learning processes, the theory makes provision for the teachers. This is why the system is described as being holistic in its

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[1] Thirteen Ed Online. Constructivism as a Paradigm for Teaching and Learning. From http://www.thirteen.org/edonline/concept2class/constrctivism/index.html. 2004

approach to teaching and learning. So, in applying constructivist theory in classroom situation, teachers are advised to pose problems that are relevant to students' day to day life experience. It also states that learning can be structured around essential concepts while teachers should be aware that students' point of views are window into their reasoning, upon which critical thinking skill could be built and improved. In a nut shell, the theory dwells extensively on teaching pedagogy with processes that facilitate critical thinking. It is therefore noteworthy that constructivism as an education theory has the following advantages which makes it a unique theory in teaching and learning processes. One, it shifts emphasis from teaching to learning. In other words, learners are given more concentration than other components of education processes such as teacher and other materials of learning. Two, it is a system that focuses on knowledge construction or development and not reproduction, regurgitation of stored facts or parroting of others' ideas. Three, it requires reflection of prior and new knowledge to infer new ones; a viable condition for the development of critical thinking skill in an individual. It is capable of extending students beyond content presented to them[1].

## 2.5 Some philosophers' perspectives of Critical Thinking in theory of knowledge (Epistemology)

In general term, logic is defined as a way of thinking or explaining something or a science of thinking about or explaining the reason for something using formal methods known as rule of logic. Critical thinking as the core activity of philosophy is identified through logic as the tool bag of philosophy. Thus, critical thinking could be understood as logical reasoning, reflective thinking, methodical doubt, skeptical doubt and so on. However, philosophers at different ages: ancient, medieval, modern and contemporary times used and discussed critical thinking, logic or reasoning under different concepts. Aristotle discussed it as logic which later became Aristotelian logic, Descartes expressed it as methodical doubt, Hume had same concept as skeptical doubt as influenced by Descartes' theory. Kant had the discourse as transcendental logic while Dewey discussed it as reflective thinking. In other words, critical thinking as the central theme of this study could be conceptually understood as logic, reasoning or reflective thinking as treated by different philosophers over the ages.

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[1] J. Giesen. *Constructivism: A Holistic Approach to Teaching and Learning*. USA: Northern Illinois University.

## 2. 6 Aristotle's Logic and Education

Aristotle is the scholar who comes to mind when logic is mentioned. Other philosophers who have commented on Aristotle credited him as the founder of logic. For instance, Russell[1] submitted that just as Plato was supreme in metaphysics, so also was Aristotle recognised as authority in logic. Furthermore, in history of ideas the most prominent concept in Aristotle's logic is the doctrine of syllogism; an instrument of inference. An inference is the ability to extract further facts from the given proposition can either be deductive or inductive. Inferences also referred to as the rule of logic or formal logic. Formal logic therefore can be described as the use of syllogism to draw inferences from a given proposition. Drawing inferences by implication leads to further understanding of a phenomenon and thereby generating new knowledge or ideas from the given. Syllogism is an argument consisting of three parts: a major premise, a minor premise and a conclusion[2]. Syllogism has types, each of which has a name given by Aristotle. These are barbara, celarent, darii and ferio syllogisms. Syllogism as mode of reasoning is the point where logic contributes to epistemology: the theory of knowledge because reasoning is central to the process of teaching and learning, and the core of knowledge acquisition. The most common and mostly used syllogism is Barbara.

**Barbaras**: e.g.

*All men are mortal (major premise)*
*Socrates is a man (minor premise)*
*Therefore, Socrates is mortal (conclusion)*

*Or*

*All men are mortal*
*All Greeks are men*
*Therefore, all Greeks are mortal.*

Syllogism comes in two forms, that is, argument from particular to the universal and vice versa. In other words, some syllogisms argue from known to unknown and from abstract to concrete. At any rate, syllogism makes reduction of fallacies possible, since fallacy occurs

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[1] Bertrand Russell, History of Western Philosophy. 1961
[2] Ibid pp.206- 207.

through faulty thinking while syllogism structures thinking to be either valid or invalid. Aristotle however postulated that all deductive inferences when strictly stated are syllogistic and that the use of syllogistic may avert fallacies. Russell opposed the assertion and submitted that syllogisms are only some among valid deductions, and therefore have no logical priority over others[1]. Russell did not give other examples of valid deductions and one thinks that what the scholar was trying to justify was that there are other ways in which inferences can be drawn that are not formal or structured like Aristotle's syllogism. However, he pointed out that induction as a means to knowledge is less cogent than deductions and therefore yields only a probability not a certainty whereas deduction provides knowledge which induction does not give. In other words, deduction is more reliable as a source of knowledge than induction inference because the latter is based more on evidences than former that is generated by an abstract intellectualism which can hardly lead to same discovery if applied by different persons. Suffice to say that deduction is more objective than induction.

It can be established that Aristotle's syllogism addressed the principle of inferences generally while Russell champions the course of deduction as more direct to education than induction. The two scholars are apparently on two different camps between inference and deduction. However, the most relevant aspect of the argument is that the two principles could lead to acquisition of new ideas or knowledge if their applications are well understood and applied accurately to the activities of education. The two types of inferences still express the use of logic in solving problems. Russell differs with Aristotle's on his manner of logic presentation because he argued that one may not learn logic by reading Aristotle's works on logic. This submission may be right in the sense that reading *organon* which is the collection of Aristotle's works on logic will not give step by step approach to the study of logic. Instead, Aristotle discussed various issues using logic in practical form. One then thinks that for the use of logic to be teachable, there should be laid down rules to guide anyone who wishes to learn logic: especially the beginners. Nevertheless, the rule of syllogism partly solves a problem because both the principle and the uses are self-evident; since the conclusion usually followed from the premise given which can easily lead one to make right judgement. Moreover, syllogism can also be used to determine the truth and falsity of ideas or proposition presented. Drawing inferences is not the only use of logic. It can be leant to equip one with the skill needed for effective and logical presentation of views in an

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[1] Bertrand Russell, History of Western Philosophy. 1961  p209

argument. Besides, logic is an area of study that strictly laid down the rules which the mind should follow in order to arrive at truth and thereby minimise errors.

Aristotle's *organon* was about the choice of words. In the *Categories*, Aristotle argued that words cannot be true or false in isolation; statements have to be made by words to form propositions which could either be positive or negative statement or thereafter determined to be either true or false. It is when a proposition is clear that inference could be drawn from it. Furthermore, it is evident from Aristotle's analysis in the *Categories* that logicality reflects in philosophical writings, especially in the use of appropriate words. This implies that using appropriate words in speaking and writing signifies logical writing. Examples are given of the use of appropriate correlations to avoid distortion. Aristotle says that for the word 'slave' to be used relatively, the word 'master' should be accompanied with it. He further explained that without a man being the master, the slave is not a slave. Thus, it is essential that the correlated terms should be exactly designated for writings to be logical, lucid and concise. It could therefore, be deduced from the foregoing that reasoning or ability to reason rightly does not end at good thinking, but also should reflect in the manner of report presentation or writing. So, in writing out one's idea logically, rules should be followed by making use of the right words or dictions. It is worthy to note that Aristotle does not give a particular definition to logic; rather logic was used in all the six works that constitute *organon.* Perhaps that is why logic is referred to as an instrument or tool of doing philosophy. The *categories* by Aristotle were purely analytic philosophy. It discussed concepts with various degrees of meanings and usages. Ayer[1] corroborated this assertion that the activity of philosophising is essentially analytic. In his words;

> The validity of the analytic method is not dependent on
> any empirical. For the philosopher as an analyst is not
> directly concerned with the physical properties of things.
> He is concerned only with the way in which we speak
> about them[2].

With this submission and others, duty of philosophy and philosophers is clearly defined as one who clarifies issues to avoid ambiguity. What then is the relevance of logic to education, since it is pointed out that Aristotle neither defines nor states steps to achieve logicality? In response, logic from all indications and how it has been used by Aristotle in related works-*organon*, serve as background to critical thinking. More so, all Aristotle's achievement in all areas of human disciplines was through application of logic. Logic was a veritable tool used

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[1] A. J. Ayer. *Language, Truth and Logic.* England: Penguin Books Ltd. 1971
[2]. ibid P. 42

to subject propositions or ideas to scrutiny as demonstrated by the use of syllogism. It was earlier being ascertained that syllogism if well used can be an instrument to determine the truthfulness or falsehood of an idea. Therefore, in as much as the study and application of logic is to grant independent discovery, logic is capable of fortifying an individual to detect error or correctness of an idea without necessarily depend on any external factor. Scientific assumptions are equally based on this principle, which is discovering new ideas from the existing facts through reasoning. In other words, Aristotelian logic is an educational tool that can be used to detect or develop new ideas as aptly demonstrated in the *Posterior Analytic*s. The work implies reasoning upon what is known or given with the aim of producing a better product or generating new ideas. This therefore means that the survival of other disciplines or advancement in human knowledge and understanding rests on the application of logic. That is to say if logic is not applied to learning, understanding may be difficult to achieve. Moreover, in the comment of Grosseteste[1] on *Posterior Analytics,* sensory experience must be aided by reason for knowledge to be extracted from the knowledge of the first principles. Thomas Aquinas and Rene Descartes as referenced by Grossetets also shared this view; both philosophers were of the view that the first principle or reality in the sciences is clearly and distinctively perceived by reason[2]. This shows the importance of logic in knowledge acquisition and why it is necessary to be consciously incorporated into the activities of education.

A question may arise as to why the choice of investigating with logic; after all, Aristotle had never made reference to it as pedagogy? More so, he had not designated any portion of his works to logic specifically. It is on record that Aristotle had been one time or the other a teacher, especially at his school 'Lyneum'. Besides, in all his works codified as *Organon*, logic has been displayed in the mode of writing, thereby serving as an example of logical writings and doing philosophy through critical thinking. It can therefore be extrapolated that someone who writes logically must have taught logically as well. So, if 'The Academy' was rated one of the best educational institutions ever established, definitely the method of teaching which involved the use of logic could not have been found wanting or deficient in the process of raising learners in the institution.

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[1] Grosseteste, *Medieval Theories of Demonstration* retrieved March 19, 2015 from Stanford Encyclopedia of Philosophy..
[2] Ibid p. 13

## 2. 7 Critique of Aristotelian logic

The major idea of Aristotle's logic is the development of syllogism as a means of drawing inference from the given proposition. The idea of syllogism appears to be narrow in scope as all effort were dissipated to drawing inferences alone. Moreover, syllogism concentrates more on oral and written form of expression while little or no attention was given to activities that involve doing. The aspect of doing remains implied in Aristotle's logic because no categorical reference was made to it in all works concerning logic. Beyond this there is no step by step approach to the use of Aristotle's logic that can serve as a model.

Strictly speaking, Aristotle did not design his logic directly for education process because there is no particular work where logic was discussed in relation to education or teaching and learning unlike other philosopher like Plato and Dewey. This does not mean that Aristotle failed to address education, but logic was not given a special consideration in line with teaching and learning processes. Nevertheless, since philosophy is an applied discipline, and one that permeates all areas of human study, logic can be formally introduced to educational process so as to make school produce innovative individuals as products. This implies that knowledge of logic prepares man for advanced and creative thinking which can potentially better man's outlook and enhances a chosen carrier. Ideas rule the world and ideas come from critical thinking. Another significant defect of Aristotle's logic was that despite his status as the father of logic, no single definition of logic could be traced to him. Perhaps, this accounted for the inability to apply Aristotle's logic by just anybody. What is obvious is that Aristotle just makes use of logic as philosophical tool and any other person is expected to just learn philosophy by philosophising. By and large, understanding the rule of syllogism prepares one for thinking spree that has a target of further development.

## 2. 8 Descartes' Methodical Doubt of Enquiry and Education

Rene Descartes belongs to the generation of the medieval philosophers. He made a landmark success in mathematics and physics where he posited a method of access to fact and truth as the *sine qua non* of knowledge acquisition. He proposes four precepts as a guide towards attaining knowledge known as methodical doubt, Cartesian doubt or cogito. The methodical doubt is to produce knowledge rationally independent of any sensory organ. The method assures its validity through doubting of any existing proposition or object of study until certainty is attained. This is to provide an inquirer with solid foundation for the knowledge that is eventually discovered through the process. Knowledge acquisition stems from doubt through division of proposition or problems into various parts for analysis. Next

is to begin to analyse the identified problems from simplest to the most difficult and finally to be sure that nothing is left out unattended to.

The principle of methodical doubt as enunciated by Rene Descartes is his epistemological contribution to philosophy. The principle which was based on his popular dictum in Latin '*cogito ergo sum*' which means 'I think, therefore I exist'. The cogito is also known as Cartesian doubt; which aims at establishing true knowledge by reasoning. The idea was presented in his philosophical treatise titled, *A Discourse on Method*. The methodical doubt started by Descartes scepticism which made him doubts virtually everything, including his own existence. He thereafter came to the conclusion that the only certainty or incontrovertible truth to him was that, he was thinking. In other words, the only indubitable truth was that he was a thinking being which he also expressed in Latin as, '*sum res cogitans*' meaning that 'I am a thing that thinks'. He contends that he has to exist to be able to think. Having been convinced, that scepticism had been defeated by the '*cogito*', it was then dawn on him that it is possible to achieve an indubitable knowledge of many other propositions. He therefore submitted that everyone is endowed with 'good sense', that is, power of judging correctly and distinguishing the truth from falsehood[1]. This implies that if everyone is given proper education, man can attain any knowledge or realises his potentials. However, Descartes further states that it is not enough to possess a good mind but to apply it correctly, because the greatest minds are capable of the greatest vices as well as the greatest virtues. This explains why rationalist centralise on the education of the mind being the seat of all knowledge. Besides, the state of the mind determines the behaviour to be exhibited by an individual.

Descartes establishes that no idea got from any other sources is genuine as the one that comes up through an individual's reasoning[2] because only this source can supply apodictic certainty. Nevertheless, to obtain truth or certainty through rationality, Descartes devised four precepts for the methodical doubt or Cartesian doubt. These four precepts according to him aimed at dealing with the errors which may exist in the mind. The precepts serve as the foundations for dealing with everyday moral problems as they arise. The four methods are: first, never accept anything as true unless if incontrovertibly known to be so. That is, to carefully avoid both prejudice and premature conclusion; and to include nothing in one's judgements other than that which presented itself to the mind so clearly and distinctly, that he would have no cause to doubt. Second, divide all the difficulties under examination

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[1] Descartes, R. *A discourse on method*. I. Maclean (Trans). New York: Oxford University Press, 2006. P.5
[2] Ibid p.12- 13

into as many parts as possible, and as many as were required to solve them in the best way. Third, to conduct one's thought in a given order, beginning with the simplest and most easily understood objects, and gradually ascending, as it were, step by step to the knowledge of the most complex; and positing an order even on those which do not have natural order of precedence. Fourth, to undertake such complete enumerations and such general surveys that he would be sure to have left nothing out[1].

However, Descartes admonished that everyone should fashion his/her own processes of reaching knowledge because an idea is valid only if it emanates from one's own mind, rather than ideas gotten from others. He further substantiated that things made up of different elements and produced by many several master craftsmen are often less perfect than those on which only one person has worked[2]. This excuse may not stand based on the first principle posited by Descartes that nothing should be accepted unless one is incontrovertibly sure that such a thing or idea is true. We should not forget that most of the times, human combined efforts results are usually positive and rewarding. At any rate, it can be gleaned from these precepts that the route to indubitable knowledge starts from scepticism because knowledge should be based on solid foundation of complete absence of doubt. The submission that certainty is the opposite of doubt, is suffice to accept the idea that as man's certainty decreases, his doubt increases. It is obvious then that one can use methodical doubt to promote further thinking before reaching the indubitable fact which becomes knowledge. Methodical doubt therefore can be described as purposeful doubt.

The methodical doubt is for a purpose of attaining knowledge and to find out truth. So, since knowledge should rest on fact and truth, Descartes contends that it is better never to contemplate investigating the truth about any matter then, than to do without a method[3]. The use of methodical doubt in the cogito was to find out the utmost truth of knowledge. Thus, the Cartesian doubt was likened to an architect's activity who intends to construct a building on solid ground where there is sandy topsoil over underlying rock, or clay base. He begins digging out a set of trenches from which he removes the sand, and anything resting on or mixed with the sand, so that he can lay his foundation on solid soil. Similarly, a knowledge explorer should begin by taking out everything that is doubtful and throw it away like the architect does to sinking sand. Sceptical doubt uses doubts to test the firmness of beliefs as

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[1] Descartes, R. *A discourse on method*. I. Maclean (Trans). New York: Oxford University Press, 2006 p17
[2] Ibid p12
[3] L. Newman, Descartes Epistemology. Retrieved March 19, 2015 from Stanford Encyclopedia of Philosophy, 1997.

foundations for knowledge. In other words, scepticism is testing epistemic reliability of beliefs. Thus, methodical doubt is described as philosophising in an orderly manner to assist man make rational judgement. Descartes says that one would not be a philosopher if he can only make references and not be able to solve surmountable problems. According to him,

> We shall not become philosopher if we have read all the arguments of Plato and Aristotle but are unable to form a secure judgement on the matters in hand.

Similarly, one cannot be acclaimed educated only if what he can do is to regurgitate given ideas. In fact, such a person can be judged as growing but not developing intellectually because the essence of being shown example is for one to advance the knowledge to achieve development. Nevertheless, Descartes identified two types of doubts that can defeat knowledge. These are 'belief defeating doubt' and 'justification defeating doubt'. Doubt which undermines one's conviction or belief is referred to as belief defeating doubts, while a doubt which undermines one's justification is called justification defeating doubts. These kinds of doubts should be noticed, identified and managed well to help re-establish one's conviction of knowledge attained. How then can one identify belief defeating doubt and justification defeating doubts? Belief defeating doubts are those reasoning or acceptance based on belief and not on reason or conviction while justification defeating doubts are those unsubstantiated excuses given against a proposition.

## 2. 9 Critique of Descartes' Methodical Doubt of Enquiry

*Cogito ergo sum* meaning 'I think, therefore I exist' is Descartes popular dictum through which he contributed to the theory of knowledge. If literally translated, it means that it is only thinking being that exists. Is this existence the same with that of other higher mammals because they also think in their own ways? Ordinarily, to exist is to be living, so does Descartes suggesting that only thinking being exist, what about other living things as described by science? In the commentaries of other rationalists who held that what differentiates man from other animals is ability to use language and thinking. If these attributes are actually what make man an existing being, what about the insane? He also thinks, does he also fall under the category of Cartesian Cogito? The action displays by animals could be taken for thinking as well.

Besides, the expression puts one in doubt of the logicality of the statement, which one comes first, is it to exist or to think? In one's understanding and for the expression to be logical existence should precede thinking. Then, why should Descartes put thinking before

existence? Perhaps, this confusion precipitated the declaration that his idea is to be used only by him and that any other person should develop his own method. Although, Descartes later came up with another dictum that tried to alleviate fear of confusion, '*sum res cogitan'* meaning 'I am a thing that thinks' but this is still not enough as reason because other animals do think. Nevertheless, the proposition has become a theory of knowledge in philosophy. Doubt as proposed by Descartes can afford anyone an access to more facts about a problem at hand, so in the analysis of the facts one becomes well informed about the problem as well as with the attendant possible solution.

## 2. 10 Hume's Sceptical Doubt and Education

David Hume, a Scottish philosopher is an empiricist to the core. He is categorised as a modern philosopher who was influenced by Descartes philosophy. His Sceptical doubt is an anti-thesis of Methodical doubts. He applied scientific method of observation to study human nature in his book titled *An Enquiry Concerning Human Understanding*, and concluded that reasoning does not produce any knowledge or understanding. Rather, what is obtainable is association of events and objects. Hume rejects metaphysical effort to provide an infallible rational justification of beliefs and popular deduction from catalogue of human beliefs[1]. To discuss human understanding, Hume represents mental content with perception and divided this into two categories: impressions and ideas. In other words, human understanding is based on these two principles. It was further stated that impressions include sensations, desires, passions and emotion while ideas are the faint images of these in thinking and reasoning[2]. These two classes were distinguished by their degree of force and vivacity. Impressions are lively perceptions and ideas are less lively perceptions. The former is described as the direct, vivid and forceful product of immediate experience while ideas are merely feeble copies of these original impressions.

Hume contends that every idea must be derived from an antecedent impression. This implies that ideas come from the mind which is not accessible from outside as argued by the rationalists. Therefore, it makes sense to inquire into the origin of our ideas by asking from which impressions they are derived. The answer to such enquiry forms basis for human understanding or knowledge. Hence, all materials of thinking are derived either from outward or inward sentiment which is the mixture and composition of what belongs to the mind and

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[1] G. Kemerling. Hume: Empiricist Naturalism@http://www.philosophypages.com/hume'sepistemology. Accessed 31/12/2014

[2] E. M. William & R. B. Charlotte. David Hume. Retrieved December 31, 2014 from Stanford Encyclopedia of Philosophy.

will. In other words, it means that all our ideas or more feeble perceptions are copies of our impressions or more lively perceptions[1]. That is to say, all ideas especially abstract ones are naturally faint and obscure while all impressions, that is, all sensations either outward or inward are strong and vivid. He affirmed that all human impressions are innate while our ideas are not[2]. He postulates that all the object of human enquiry may naturally be divided into two kinds: relations of ideas and matters of fact. So, connection of one idea to another is invariably the result of an association that man manufactures himself. This association is what appears like reasoning under rationalism. In empiricist parlance however, mental operations which may be equated with thinking in rationalist ideas is used to link ideas to each other in one of the three ways identified by Hume, namely resemblance, contiguity or cause and effect. Experience, according to Hume provides us with both the ideas themselves and our awareness of their association. That is to say what is regarded as knowledge or understanding under rationalism is called human beliefs in empiricism which ensued from repeated application of the association of resemblance, contiguity and cause and effect. Experience therefore, gives direction to relation of ideas and matter of fact which are the sources of human enquiry as extrapolated by Hume.

Relations of ideas are beliefs grounded wholly on associations formed within the mind. They are capable of demonstration, because they have no external referent. They are affirmation which is either intuitively or demonstratively certain. For instance, that three times five is equal to the half of thirty expresses a relation between these numbers. On the other hand, matter of fact are beliefs that claim to report the nature of existing things, they are always contingent. The contrary of every matter of fact is still possible because it can never imply a contradiction. For instance, that the sun rises tomorrow based on supposition that it happened yesterday is not justified because the weather may change. This implies that inferences from past to future are never rationally certain. Hume actually argues against knowledge acquisition outside sensory organs but indirectly, his arguments are justifying the submission of the rationalists. On this note, Hume rejects any rational knowledge and gives recognition to experiential observations because it permits man to use his experience in forming useful habits. Any other epistemological effort, especially if it involves the pretence of achieving useful abstract knowledge, to Hume is meaningless and unreliable. It should be noted however, that it is impossible to form any association arbitrarily without any activities going on within the mind as identified by Dewey that all what goes on in man's mind is

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[1] D. Hume. *An Enquiry Concerning Human Understanding*. Germany: Digireads.com publishing, 2005. P12
[2] Ibid p.13

called thought; and this cannot be ruled out in the process of forming association between objects and thought. Hume further reiterated that the matters of fact is determined by the principle of cause and effect whereas they arise entirely from experience and not attained by reasoning[1]. This submission was supported with the argument that, no matter how brilliant a man is, he cannot discover the cause and effect of an object he comes in contact with for the first time. Therefore, he needs experience to understand the cause and effect. Hume says that;

> No object ever discovers by the qualities which appear to the senses, either the cause which produced it or the effects which will arise from it; nor can our reason, unassisted by experience ever draw any inference concerning real existence and matter of fact[2].

It is evident from the foregoing that Hume's stand point is that knowledge is achieved through experience and not through reasoning. Further example given to substantiate the claim was that an explosion of gun powder cannot be known through reasoning except through experiment and observation, which are agents of experience. At any rate, as convincing as this illustration looks, one still believes that reasoning plays important role in the process of experiment and observation. There are other issues that are not subject to observation which only reason could be used to unravel. For instance, what observation could be used to explain some African realities like 'afeeri' (someone physically present but not seen with naked eyes). Therefore, just like Hume himself said that: a man is guilty of unpardonable arrogance who concludes, because an argument has escaped his own investigation, that therefore it does not really exist[3]. It is an established fact that some problems defile scientific study, in that case, reasoning takes charge. Besides, reasoning is the coordinator of the activities of experiment and observation through logicality in the presentation of report, and presentation of ideas. Even in the process of choosing what facts to uphold and which one to reject, reasoning comes into play. This is what Kant meant by transcendental judgement. One has to base either the rejection or acceptance on certain reasons or justifications.

In further exposition, Hume contends that all reasoning from experience has steps taken by the mind. This argument was not supported with any evidence any way, before he continued to state that there is no danger that reasoning on which almost all knowledge depends, will ever be affected by discovery of experiment and observation. Hume however

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[1]D. Hume. *An Enquiry Concerning Human Understanding*. Germany: Digireads.com publishing, 2005. Pp17

[2] D. Hume. *An Enquiry Concerning Human Understanding*. Germany: Digireads.com publishing, 2005

[3] Ibid p22

declared that all inferences from experience are effects of custom or habit and not reasoning. This he thought was the reason for trust and followership enjoyed by man of experience while novice with whatever talents endowed is neglected and despised. Experience therefore, is supposed the only supplier of stability and certainty to the maxims derived from study and reflection[1]. By this submission, the scholar appears to be mixing the distinction between experience and reasoning, or that he arrogated too many purposes to experience because for the activities of experience to be meaningful, there is need for coordinating agent, and that is reasoning or thinking before any linkage in experience can be established. It is also noticed that the conclusion established after the process of custom or habit as postulated by Hume happens arbitrarily because the processes of custom and habit that resulted in experience was not stated. Whereas, one thinks the inferences drawn from the matter of facts is possible through thinking. It is thereby suggested that there is need for synergy of experience and reasoning for knowledge to be valid and incontrovertible conviction.

Nonetheless, in the sceptical doubt embarked by Hume, alternative to traditional *apriori* knowledge was proposed as sceptical doubt. Sceptical doubt is Hume's philosophical concept used as a denial that reasoning is responsible for knowledge acquisition. Sceptical doubt is proposed as the problem and the remedy to it is termed 'sceptical solution' based on the principle of custom or habit as basis for formation of association. Custom or habit is general name for the principle of association which Hume posited that leads to discovery. Principle of association is described as natural instinct which no reasoning is able either to produce or prevent.

## 2. 11 Critique of David Hume's Sceptical Doubt

Hume's sceptical doubt is an argument in support of knowledge through sensory organs. The philosopher seems to be extreme in his support for empiricism and this makes him fail to acknowledge that both rationalism and empiricism have a point of interception which is thinking. For instance, he argued that rather than knowledge through reasoning what is obtainable is association of events and object from experience. The question that arises here is that what other factor if not reasoning coordinates the association of events and objects? The basis of Hume's knowledge acquisition is experiential and observation because they permit man to use his experience in forming useful habits. This argument reminds one of another argument that forming useful habits is a form of judgement which is argued to be prerogative function of reasoning. It is then expected that the mind involves in thinking in the

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[1] D. Hume. *An Enquiry Concerning Human Understanding*. Germany: Digireads.com publishing, 2005.  p26

process of experiential observations. There is possibility of non-useful habit in the process formation; it is the reasoning that one thinks separates useful from non-useful habits. Moreover, the use of reasoning goes beyond matching two different objects together under the pretence of association. Besides, human experiences are not the same, so in order to present one's idea to other, reasoning is essential in form of logical presentation of ideas. Hume made mention of knowledge as impression on the mind, then how does such impression presented as knowledge discovery? Thus, conclusion could be drawn that most of the assertions by Hume as regards human understanding through experience are begging the question because the convictions were not strong as he solely champions the cause experientialism.

Despite Hume's denial of the presence of reasoning in the process of knowledge acquisition, his experiential mode of learning is still relevant to teaching and learning. Hume's argument could be considered as anti-thesis to rationalism while the synthesis will be that if not through reasoning, knowledge can still occur through experience which is not contradictory to the argument of rationalism, only that knowledge through experiences need to be synergised with logical presentation to produce incontrovertible knowledge or experience.

## 2. 12 Immanuel Kant's Transcendental Logic in Epistemology

Immanuel Kant was a German philosopher and another series of modern philosopher. He authored a book, *Critique of Pure Reason* where he discussed transcendental logic as a process to attain knowledge. The book investigated nothing less than the nature of human reason and knowledge acquisition, which is his contribution to epistemology. Kant believes firmly in the powers and virtues of reason.[1] Kant pontificated that if reason is sufficiently developed, it could take control over realm to which people normally believe it has no access. *Critique of Pure Reason* was motivated by the profound dissatisfaction with the philosophical situation of his time, wherein a traditional rationalist school of thought was under attack from fashionable empiricist philosophy. The major difference between the two schools of thought is simply that rationalism grounds all our knowledge in reason while empiricism traces all our knowledge back to experience. It is upon this that Kant wrote to defend the course of reasoning as a means to access knowledge. He argued that our knowledge of objects and of natural reality in general does not depend on the objects themselves but empirical objects depends on our knowledge of them. In other words, objects

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[1] Kant, I. *Critique of Pure Reason*. W, Marcus (Trans.). England: Penguin Classics, 2007.

conform to the way the subject knows them. Among other reasons given in support of the hegemonic status of reasoning over experience was that experience was not something that occurs in a simple receptive faculty, that is, senses, but based on the fact that reason forms and mediates whatever the senses receive.

It is therefore inferred from Kant's affirmation that reason and sensory experience is united as sources of knowledge, where reason gives shape to what sensory experience provides as content. If separated, none is meaningful, that is, neither of them provides tangible knowledge. This claim was supported by Kant's popular dictum that, 'thoughts without content are empty while intuitions without concept are blind'. Hence, Kant referred to self-pure reflection as transcendental investigation of our reason which enables one to formulate conditions under which knowledge is possible. Transcendental logic as postulated by Kant denotes a mental realm that precedes the empirical and which makes experiences possible[1]. The implication of this is that reasoning precedes experience; reasoning has existed within man before experiences come to it. In other words, knowledge through the senses alone is not realistic without the interplay of reason.

In the analysis of transcendental logic, Kant makes use of two terms to explain the concept and these are 'a priori' and 'a posteriori' knowledge. A knowledge that is independent of experience and even of all the impressions of the senses is called 'a priori' while empirical knowledge which has its sources in experience is called 'a posteriori' knowledge[2]. Kant further explained that 'a priori' is called pure reasoning if nothing empirical is mixed with it while it is 'a posteriori' knowledge when mixed with empirical objects. Furthermore, 'a priori' knowledge implies thinking about corporeal or incorporeal substance as determinate. This makes it knowledge independent of experience. One can then conclude that thinking is an inbuilt quality of man with which he makes empirical knowledge relevant and useful. Conversely, the permanent nature of thinking in man could be responsible for the empiricist to argue that knowledge is only through experiences, since experience brings in new thing to the mind with fixed thinking mechanism. At any rate, Kant further argued that knowledge goes beyond the world of appearance; reason carries out its investigations where experience can never guide or correct us[3]. In other words, images or objects do not give any impression of themselves except what reasoning takes them to be.

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[1] Kant, I. *Critique of Pure Reason*. W, Marcus (Trans.). England: Penguin Classics, 2007. P xxxiv
[2] Kant, I. *Critique of Pure Reason*. W, Marcus (Trans.). England: Penguin Classics, 2007. p 38
[3] Ibid. p 41

Transcendental logic is therefore defined as the science which treats the principles of pure thought while science of all the principles of apriori sensibility is transcendental aesthetic.

Critique also affirms that knowledge springs from two fundamental sources of our mind; first is to receive representations, the second is the faculty of knowing an object through these representations. In the first, an object is given to the mind and through the second the object is thought which the determination of the mind is. Both are either pure or empirical knowledge. It is empirical when it contains sensation and it is pure when no sensation is mixed up with representation. Knowledge only arises from the union of intuition and understanding. Kant also considered the concepts of space and time as another two sources of knowledge from which a variety of synthetic knowledge can be drawn apriori. He argued that both concepts are parts of inner intuition qualities which are inbuilt in man. This was substantiated with a saying that, 'Take away from the time the special condition of our sensibility, and the concept of time vanishes as well; time does not adhere to the objects but only to the subject that intuits them'[1]. Space and time are thus postulated as the necessary conditions of all (outer and inner) experiences, and are merely subjective condition of man's intuition. In relation to these conditions therefore, all objects are mere appearances and do not exist for themselves as things given us in this way[2]. Understanding or knowledge according to Kant is the concept which gives unity to pure synthesis and which consists solely in the representation of the necessary synthetic unity; where synthesis is the act of putting different representations together, and of comprehending their manifoldness in one item of knowledge.

## 2. 13 Critiques of Kant's Transcendental Logic

Transcendental logic is just Kant's appellation for reasoning and the idea is purely theory of rationalism. Rationalist idea believes that knowledge occurs independent of experience as against the argument of empiricists that knowledge occurs through sense experiences. Through the transcendental logic, Kant has contributed to plethora of philosophical ideas on epistemology: the theory of knowledge. Kant's writing appears to be difficult to understand and sometimes confusing by the manner of explanation and the use of illustration that are not easily comprehensible. There is an element of objectivity in Kant's argument by pointing out that both reasoning and experience are capable of knowledge determination only that validity of one is higher than the other. Unlike David Hume whose argument was on the superiority over reasoning as path to knowledge acquisition. However,

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[1] Kant, I. *Critique of Pure Reason*. W, Marcus (Trans.). England: Penguin Classics, 2007,. p 72-73
[2] ibid p79

the inclusion of space and time as alternative sources of knowledge apriori by Kant calls for enquiry. This may happen probably because the two terms are abstract concept like the mind where knowledge is found. Or it could mean that space shows exact place where knowledge is found while time indicates the maturity of the mind that intuits about knowledge. Whatever it is, the fact remains that connection exists between the mind (reason) and experience (senses) for knowledge to be formed.

## 2. 14 John Dewey: Reflective Thinking and Education

John Dewey is an American philosopher and philosopher of education. He belongs to the group of contemporary philosophers. His popular school of thought is pragmatism; a doctrine which holds that only workable idea is good. He is an identified philosopher of education due to his intellectual contributions to teaching and learning processes. One of such books is *Democracy and Education,* written in 1916. Apart from this, his educational philosophy was the turning point of American system of education. Dewey exemplified critical thinking or logic as reflective thinking. Reflective thinking which can be described as an act of having second thought on a matter, with a view to putting a matter in the right place or make an advancement on what is already known or discovered. Reflective thinking however becomes one of the synonyms for critical thinking among others as discussed by Dewey. The idea of reflective thinking was discussed in his book, *How We Think*, where thought was described as everything that comes to the mind and goes through our heads[1]. Thought was further described as instrument used when we think of anything especially when we do not directly see, hear, smell or taste something. This implies that knowledge is possible without necessarily relying on sense organs, unlike what the empiricists postulated as the only source of knowledge comes through sense organs. On the contrary, Dewey argued that what the sense organs have access to cannot become knowledge until reasoning comes in and do the processing of thought. If one takes a critical examination of these two arguments, it means that without the senses supplying of images to think about, the thought cannot work with empty ideas. This submission is well captured in R. S. Peters' aphorism that content without criticism is blind while criticism without content is also empty[2]. In other words, knowledge may not be possible without the interplay of thinking with interacting objects. When knowledge is based only on sense organs, what is experienced is intuition, and

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[1] J. Dewey. *How We Think*. Boston: DC Heath & Co. 1910.
[2] R. S. Peter. *Education as Initiation*. P104

intuition is still a product of meta-reasoning which Akinpelu[1] affirmed as one means of knowledge acquisition. Furthermore, Dewey acknowledged that apart from being in theory, there is no adequate provision for good habit of critical thinking in education processes[2]. This supposition is actually true but the problem lies with the pedagogy use in teaching.

Dewey argued further that rather than for the teachers to allow students exercise thinking in the course of teaching and learning, what is done is giving students something to do, not something to learn; whereas the doing is of such a nature as to demand thinking which could have resulted into learning naturally[3]. In essence, rather than giving or creating activities that is capable of engaging learners in intellectual activities in the process of teaching and learning, they were taught facts to be memorised, thereby killing thinking ability of the learners. Whereas in Dewey's idea, where children are engaged in doing things and discussing what arises in the course of their doing, it is found that children's inquiries are spontaneous and numerous, and the proposals of solution advanced, varied and ingenious[4]. Nonetheless, it is obvious that apart from the knowledge produce by senses which thought advances, reasoning can independently produce knowledge especially of abstract ideas at abstract intellectualism level[5]. That is an idea that cannot be concretised and yet constitute an impediment into human development and advancement.

Dewey equally shared the idea that thought is limited to beliefs that rest upon some kind of evidences or testimony. Beliefs ordinarily cannot be taken as knowledge because it lacks verification. But, when it rests on an evidence or testimony, it becomes more substantial and can be reckoned with as new idea that can be worked with. Dewey further explained 'thought belief' in two ways: a belief accepted with slight or almost not attempt to state the grounds that support it; and the ground or basis for a belief deliberately sought to support the belief examined[6]. This process of thinking is what Dewey referred to as reflective thinking. Hence, reflective thinking is described as random coursing of things through the mind, in that it consists of succession of things thought of[7]. In other words, reflection involves not simply a sequence of ideas but a consequence of that idea. In a more vivid explanation, reflective thinking is a consecutive ordering in such a way that each determines

[1] J. A. Akinpelu. Is there a Philosophical Method in Education? Enoh & Babarinde (Eds.) *A Guide to Philosophical Research in Education*. Ibadan: Sterling Horlding. 2012. P14
[2] J. Dewey. *Democracy and Education*. NY: Macmillan Company, 1916. P 152
[3] ibid. 152
[4] ibid. p 156.
[5] ibid.p 298
[6] J. Dewey. *How We Think*. Boston: DC Heath & Co. 1910
[7] ibid

the next, its proper outcome, while each in turn leans back on its predecessors. That is to say that reflection is a chain of thoughts where one thought leads to another until conclusion is drawn. This process is the formal thinking which is different from the spontaneous or normal day to day mode of thinking or reasoning (intuition) common to every normal human being. The above process of formal thinking is in tandem with Plato's submission that the level of understanding begins with illusion and graduates to belief, reasoning and finally end at knowledge. Dewey explains that the successive portions of the reflective thought grows out of one another and supports one another; they do not come and go in a medley[1]. From this, it can be drawn that critical thinking is a chain of thoughts which differentiates it from other forms of thinking.

Reflective thinking is further clarified as thinking which produces imaginative thought is not reflective thought because they do not aim at knowledge, at belief about facts or in truths. In contrast, reflective thinking aims at knowledge, belief about facts or in truths. If this argument is correct, what about some thinking which are imaginative but aimed at providing didactic knowledge, and some of these come from imaginative thoughts. This could be found especially in subject area like literature-in-English where fiction stories aimed at providing certain knowledge to the readers as part of life experience that constitute knowledge. Tradition, instruction, imitation were given as examples of unexamined beliefs, whereas, reflective thought is one based on consideration of the grounds or reasons of their beliefs and its logical consequences. Nevertheless, reaching the level of grounds of beliefs and logical consequences are not automatic. They have procedure which Dewey identified as stages in reflective thinking. These are stages of:

I.    A felt difficulty,
II.   Its location and definition,
III.  Suggestion of possible solution,
IV.   Development by reasoning of the bearings of the suggestion, and
V.    Further observation and experiment leading to its acceptance or rejection, that is, the conclusion of belief or disbelief[2].

By explanation, the stage of felt difficulty could be described as the level of problem identification. A point when an individual is really able to identify the problem at hand. The kind of problem being referred to here is one that has bearing with human existence, just as

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[1] J. Dewey. *How We Think*. Boston: DC Heath & Co. 1910
[2] J. Dewey. *How We Think*. 1910. P72.

Akinpelu[1] said that any philosopher's thinking that does not affect human life is not worthy. In the same vein, Epictetus, a Roman philosopher ruled that vain are the words of the philosopher that does not heal some human wound. In other words, critical thinking should be one that touches human life positively. The second stage is when an individual can identify or give unequivocal description of the problem or difficulty to be solved. This should clearly differentiate it from pseudo problems or red herring that do not have contribution to human development. After being able to identify and define the problem or difficulty, an individual should step up to the level of suggesting likely solution to the problem. This is the level of forming hypothesis, producing plausible clue towards solving the identified problem. It is at this point that dialectics or critical thinking comes to play, that is, putting into test the suggested solutions to the identified problem through self-analysis and observation, which is expected to be done genuinely and objectively. The third and fourth stage glide together, at this level an individual should be able to state to the best of his reasoning ability whether the suggested solutions to the problem actually have bearings with the identified problem. The final stage is what is called stage of further observation and experiment leading to its acceptance or rejection. That is the stage at which an individual makes or passes judgement or better still the level of decision making. At any rate, this stage is not to be seen as the final stage, since all knowledge in life is tentative and subject to further improvement as explained in triadic mode of dialectics..

In the final stage of steps into reflection, the proponent equally submitted that the essence of critical thinking is suspended judgement, and the essence of this suspense is for inquiry to determine the nature of the problem before proceeding to attempt at its solutions[2]. Nevertheless, critical thinking should be understood as goal oriented thinking which is quite different from the day to day spontaneous thinking. It is a kind of thinking that is spurred by an occasion, condition or situation. Dewey affirmed this submission that critical thinking is not a case of spontaneous combustion. Critical thinking does not occur just on general principles rather there is something specific which occasions and evokes it[3]. The central factor in reflective thinking or distinctively intellectual thinking therefore, is the function by which one thing signifies or indicates the other and thereby leads man to consider how one idea may be regarded as necessity for belief in the other. Dewey also de-emphasised teaching as a form of storing information in the learner. The process described as banking concept of

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[1] J. A. Akinpelu. Is there a Philosophical Method in Education?  Enoh and Babarinde (Eds.) *A Guide to Philosophical Research in Education*. Ibadan: Sterling Holding
[2] J. Dewey. *How We Think*. Boston: DC Heath & Co. 1910 p74
[3] ibid

education by Freire is classified as mindless information storing by Dewey; whereby information is conducted by one set of pipes that mechanically pour it in, while the recitation or regurgitation is the pump that brings the material out again through another set of pipes.

At any rate, it should be noted that information is an integral part of knowledge, but not the knowledge itself. Infusion of critical thinking into the analysis of information makes it knowledge. The idea did not speak against information storage because thinking cannot go in vacuum, rather suggestions and inferences occur only to a mind that possesses information. In other words, critical thinking skill cannot thrive without a modicum of information, just as only information cannot form knowledge. Williams[1] equally corroborates that Dewey was not opposed to accumulation of information but acquisition of information that is disconnected from use. In similar opinion, Russell contends that feeding students with information just to regurgitate at demand portends dangers for the students because it deters them from thinking constructively. This kind of education inculcates the habit of passive acceptance which could be disastrous later in life; because it serves to encourage a blind, unthinking respect for the teachers and other authorities. Probably, this accounted for myriad of certificated but not educated individuals in the society. Russell opines that the kind of attitudes and practice of critical thinking common in Universities should exist in the lower schools such as primary and secondary schools, especially at the junior secondary school which serves as the terminal level for basic and compulsory education in Nigeria, so that the future generation of learners will not be those indoctrinated instead of being educated. The crop of learners at all levels should be individuals who can think critically and creatively.

Similarly, Whitehead in support of reflective thinking of Dewey as quoted by Olufowobi[2] opposed the view of passive reception of disconnected information which is termed aimless accretion of facts. Facts are useless unless it can be used. He submitted that awareness of opposing ideas forces one to rethink conventional views[3]. The relevance of education is dawn on educators and other education stakeholders when it becomes clear that students hardly go beyond regurgitation of facts just to pass examinations. The inert form of education has really deterred development in the society. The fact can even be responsible for huge cry on fallen standard of education among stakeholders; when students lack what is

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[1] Williams H. Content and Criticism: The Aims of Schooling. *Journal of Philosophy of Education of Great Britain.* Vol. 29 (1) 1995. P54.
[2] O. O. Olufowobi. An Examinmation of the Nigerian Educational System in the Contex of Dewey's Philosophy of Education as Growth and African Indigenous Education. Ph.D Thesis in the Dept. of Teacher Education. University of Ibadan. 2014,
[3] Op. Cit p49

expected of them after attending schools including ability to reason logically. Banking concept of education could have been favoured by the teachers, just as Whitehead observed that aimless accretion of facts by children allow examiners to set neat questions. In other words, the system favours the teachers because it eases their work. But, it is important that the teachers should look beyond facilitating their task, to preparing students to be productive in future. So, education should be seen as acquisition of art of utilisation of knowledge which critical thinking skill engenders as a vital component of educational process. If knowledge acquired cannot be used, then it is not relevant both to the individual and the society at large. Whitehead strongly supports the idea of getting your knowledge quickly and then using it promptly, especially to enhance self-development; but knowledge can only be put into use if one possesses it. It is therefore pertinent to state that development of critical thinking skill should not be delayed until all the necessary knowledge is acquired, rather the process should flow along students learning.

## 2. 15 Critique of Dewey's Reflective Thinking

Dewey's reflective thinking is directed at human mind. The aim of reflective thinking is to prepare mind that can solve problem. Based on this focus, the idea of reflective thinking developed a model or processes to be followed towards solving a problem. The problem could be personal, general or educational problem. Reflective thinking makes thinking more robust and focused. It has direct link with educational processes and the proponent provides a template for the training of reflective thinking.

On Dewey's argument that knowledge acquisition is possible solely by the mind without resting on sensory experience, one feels that it will be most appropriate to emphasise combination of both thinking and images of sensory organs as harbinger of apodictic knowledge. The synergy between the two elements of the two systems without doubt contributes to process of knowledge production, otherwise it creates confusing if only one idea is given supremacy over the other. More so, in education process especially in the area of pedagogy, no single method seems effective in organising learning experiences by the teacher. It should be pointed out as well that as Dewey vehemently opposed unnecessary storage of information by learners rather than thinking out their knowledge, emphasis should be on inert facts because knowledge cannot even stand without an element of facts. So, storage of information cannot be totally removed from reflective thinking skill. At any rate, Dewey's reflective thinking is more proactive and practical at developing consciousness of being rational and means of knowledge acquisition aimed at solving human problems.

Nevertheless, the study reviews Plato and Paulo Freire, as major philosophical ideas for the study as their philosophy on critical thinking link directly to the subject matter of this research for a better grasp of the concept and as background for the application and practice of the theories in Nigerian educational practice.

## 2. 16 Plato's Dialectics and Education

Plato is a respected Greek philosopher who is widely acclaimed to have done a lot in the field of philosophy, to the extent that scholars after him affirmed that there is no topic or issue that Plato did not treat; including education and particularly critical thinking pedagogy which is the major theme of this study. Akinpelu[1] once said that all philosophical questions to be raised had been done by Plato and that any other philosophy after that are series of commentaries. Nevertheless, philosophical tradition permits that no matter the personality of anyone, his ideas are still subject to further discussion, criticism or observation. Therefore, commentaries are still very useful because it gives opportunity for further understanding of concepts and expansion of knowledge. It also provides an alternative point of view to another person's idea. Besides, it is a hallmark of philosophy and philosophy of education. So, Plato's idea of dialectical teaching is to be examined along critical thinking pedagogy. Dialectical method of doing philosophy according to Plato is a means of producing incontrovertible knowledge. A knowledge that is permanent and enduring. He showed the potency of being critical to the production of sound and unshakeable knowledge through the use of dialectic. In fact, it is believed that a dialectician after training is the only one who knows.

This assertion reflected in many of his dialogues in which Socrates, his teacher and mentor, featured as the major protagonist. An example of such philosophical path to knowledge is one demonstrated in the *Meno,* where a slave boy who had never gone to school was made to prove geometry through reasoning. In the *Meno*, Plato tries to establish that human knowledge is innate or forms of reminiscences of reality deposited in the mind by the nature. This recollection can be discovered through the right questioning or dialogue between the teacher and the students. That is, certain knowledge or ideas are in-built in every human being as against the argument by the empiricists that knowledge can only be attained through experiments or experiences. Similarly, same recollection of knowledge makes the questioning method a relevant tool in the act of teaching and learning if properly handled to achieve the desired aim of education of making people critical minded; according to

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[1] J. A. Akinpelu. *Is there a Philosophical Research Method in Education?* p15

O'Connor's[1] aim of education among others is to make people critical. In practical demonstration of the effective use of questioning by teacher, Socrates engaged Meno's slave boy in dialogue to prove geometry in answer to question that ensued between Socrates and Meno. Meno asked that how can Socrates enquire into that which he does not know? What will he put forth as the subject of enquiry? And if he found what he wants, how will he ever know that this is the thing which he did not know?[2] In response to the question, Socrates declared that all learning is only a process of recollection of knowledge that had been pre-deposited in the mind. He said in other words that all learning is a form of remembrance. He posited that the process of recollection can be achieved through demonstration and questioning. This was later proved by Socrates when he engaged Meno's slave boy in dialogue which resulted in proving square root. The episode emphasised that spontaneous recovery of knowledge from recollection of an individual can be elicited through questioning and demonstration as teaching and learning pedagogy. As a guide, Socrates discouraged telling or explaining anything to the learner. Instead, a teacher should use well-structured questions to elicit learners' opinion.

A close theory to recollectionism was 'tacit knowledge' postulated by a science philosopher, Michael Polanyi[3] who rejected scientific objectivism despite being a scientist. He associated the objective of scientific method of enquiry with impersonal quality. In other words, he holds that 'tacit knowledge' is a proof that scientific method of enquiry is not the only method of achieving knowledge. Tacit knowledge as espoused by Polanyi is about those things we know but do not know how to explain them. Such knowledge can only be shown through action. It is knowledge that the actor knows he has, but which he cannot described in words, just as it happened in the case of Meno's slave encounter with Socrates. Polanyi postulates that tacit knowledge can be transferred through imitation of physical gesture e.g. apprentice to his master. He therefore submits that the fact that knowledge has a tacit component implies that we know more than we can say. The implication of tacit knowledge is a proof by a scientist that over dependence on scientific mode of knowledge which is based on objectivity is not the ultimate means to knowledge. Grant[4] quoted Polanyi that such belief is delusion and in fact a false ideal. Nevertheless, critical thinking is a link between sense perception and knowledge gained. Polanyi ascertains that the distinction between facts and

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[1] D. J. O'Conor. *An Introduction to the Philosophy of Education*. Routledge & Kegan Paul. 1957.p100
[2] Plato, 380BC. Meno.  B. Jowett (Trans). Retrieved June 26, 2008 from www.philosophypages.com  P.10
[3] Polanyi, M. 1958. *Personal Knowledge: Towards a Post-Critical Philosophy*. Chicago: University of Chicago Press.
[4] Grant, K. A. 2007."Tacit Knowledge Revisited- We Can Still Learn from Polanyi".  *The Electronic Journal of Knowledge Management*. Vol. 5 (2):175

value is the split between political science and political philosophy, and that recent emphasis upon empirical techniques is all manifestations of the influence of critical thought within the discipline.

Apart from the account of Meno, Plato described dialectic as the apogee of man's level of understanding as explicitly discussed in three different analogies in *The Republic*. The three analogies are being referred to as similes: *simile of the sun*, *simile of the divided line* and *simile of the cave*. An understanding of these similes provides understanding of Plato's ideas of human reasoning nature towards attaining understanding or knowledge. The aforementioned similes were purported by Plato to explain human understanding or nature of knowledge in three different ways. The three similes discussed same issue in three different analogies. Among the three, the one that addressed education most, especially on theory of knowledge is the simile of the divided line which scholars also tagged as Plato's line of cognition. It has four levels of knowledge acquisition which Akinpelu[1] says represent the four stages of knowledge. Nonetheless, the similes are to be discussed one after the other and the first in the series will be simile of the sun. As illustrated in the diagram below (page 31), knowledge was divided into two major classes: visible world and intelligible world. Under the visible world on the one hand, we have the sun which according to Plato is a source of growth and light which gives visibility to the object of sense and the power of seeing to the eye. This is to be known as faculty of sight. In other words, the sun has both physical and intellectual effect on the sense by preparing the sense for the next function of being used for its purpose of seeing clearly. On the other hand is the intelligible world where the good is housed. The good by Plato's explication is the ultimate goal of rational thinking i.e. the truth or knowledge. In other words, anyone who attains the level of good has reached the level of dialectician, that is, the knowledgeable. So, the good is the source of reality and truth, which gives intelligibility to object of thought and the power of knowing to the mind. This means that before anyone can be able to display knowledge and wisdom, he must have attained the level of reality and truth; where his knowledge becomes unshakeable, permanent and enduring. It should be noted as well that in education processes, the simile of the sun addressed both learning by experience and reasoning. The visible world demarcation aptly captures the experiential knowledge while the intelligible world addressed the activity of the mind towards knowledge. It could however be summed up that experiential knowledge is a pathway to rational knowledge and a confirmation that understanding is in continuum.

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[1] J. A. Akinpelu, *Essays in Philosophy and Education*. Ibadan: Stirling- Horden Publishers.2005, p.96

**2. 17 The Simile of the Sun**

| Visible World | Intelligible World |
|---|---|
| The sun | The good |
| Source of {growth and light} which gives visibility to object of sense and the power of seeing to the eye. | Source of {reality and truth} which gives intelligibility to object of thought and the power of knowing to the mind. |
| The faculty of sight | The faculty of knowledge |

In the above illustration, Plato explained that the sun only provides the eyes with light to see clearly. It is not the light that is responsible for seeing, and the seeing referred to here is not the object itself but what the sense is capable of processing with the object it was provided with. Similarly, in the intelligible world, the mind is illuminated by the truth and reality to access knowledge. When the mind understands them and knows them, its possession of intelligence is evident[1] from there if the mind is fixed on the twilight world of change and decay, it can only form opinions not understanding. In other words, if the mind mistakes fake for original, it will never pass for original. The form of good in Plato's explication gives the object of knowledge its truth and to the knower's minds the power of knowing. This is to the intelligible world. By implication, just as the sun and the light provide an enabling atmosphere for seeing; so also do the truth and reality provide enabling circumstances for the mind to access knowledge? That is to say, it is not the sense or the observation that provide understanding as claimed by the empiricists. It is the mind through reasoning that gives interpretation and meaning to the objects conveyed by senses and observation. Therefore, the mind should be taken through these processes of attaining the good by critical thinking pedagogy rooted in demonstration and questioning.

Similarly, in further explanation, Plato used simile of the divided line to further illustrate the relationship between the two orders of realities, that is, the visible world and the intelligible world. In the physical world, there is difference between physical things and their shadows. The differences are used primarily to illustrate degree of truth or genuineness in what is apprehended. In the analogy of the divided line, there are four levels of understanding namely: division A, B, C and D. Division (A) Intelligence; as full understanding (knowledge) and the highest level which culminated from the ultimate truth. Understanding is reached by means of dialectic activities as reported in the case of Meno's slave boy. Division (B) Reason, is a point of deduction, where the fakes are separated from the original before

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[1]Plato, *The Republic.* D, Lee (Trans.) England: Penguin Classics, 1987. P.234

declaring knowledge. (C) Belief, is common sense belief on matter of both moral and physical, (in this level, Plato include the natural science as part of the group, that can never reach ultimate truth because they are concerned with changeable world which is likened to dealing with fake as the original). This is an aspect of empiricism in rationalism, showing that the two ideas are related and one. While (D) Illusion is the least level of understanding, it is second-hand impression and opinion which the minds of ordinary people are full of. It is mere perception of shadows and reflections[1]. The mind at this level can never reach knowledge because it lacks reality. The category of people in this level are those who may not be educated through a high level mental activities as required by formal education but they may be good materials for vocational studies.

The line of cognition is a further illustration of the simile of the divided line. Line of cognition therefore represents four stages of the mind towards understanding or attaining knowledge. Understanding begins with illusion- belief- reason- intelligence. In hierarchy, illusion is the least, and it is compared with images or shadows of corporeal object, whereas belief is likened to the corporeal object itself; for instance, animals, plants, manufactured objects and so on around us. It is at this stage that opinion is formed about the object of study. Reason, the next stage of dialectic is the activity of the mind that happens between belief and the ultimate: understanding (a level where the mind engages in intellectual activities of analysis before inferences are drawn). Plato equates the differences between opinion and knowledge as the difference that exist between object and its shadows, and the description of visible realm. For the intelligible realm, the mind makes use of the concrete in the visible realm, that is, real objects and form assumption about it. In other words, the mind forms hypothesis about the real object and from there proceeds to belief about the object. Hence, belief is subjected to critical reasoning, to clear any reasonable doubt about the belief. Having done with the rationality of the belief, the mind attains understanding or knowledge which at this level is self-evident. This last stage is known as the intelligible realm in Plato's line of cognition. The knowledge or understanding at this level is unshakable and real. The diagramme below is the illustration of the line of cognition and simile of the divided line as explained above.

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[1]Plato, *The Republic.* D, Lee (Trans.) England: Penguin Classics, 1987 p.240

**2. 18 The Simile of the Divided Line: Diagrammatic Illustration**

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Intelligence                ┌── A
or Dialectic                │
                            │
Knowledge ┤                 │
                            │
Mathematical          B     ├── Intelligible realm
Reasoning                   │
                            │
                            │
Belief              C  Physical
                       Object
Opinion ┤                   ├── Visible realm
                            │
Illusion            D  Shadows &
                       Images
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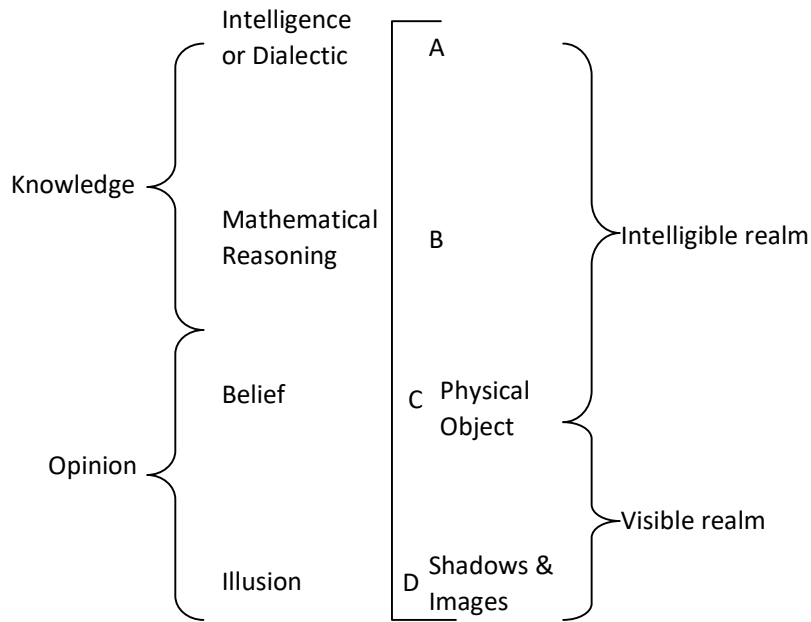
There are two major divisions in the taxonomy of Plato's levels of understanding: intelligible and visible realms. The visible realm connotes illusion and belief which are the basis for forming opinion. Intelligible realm connotes reason and intelligence (Dialectic) where the truth and reality provide the mind with ability to know. In other words, the levels of knowing are four but grouped into two sub divisions as mentioned above and shown in the diagram. Each division explains how the mind works towards achieving reality that later becomes knowledge, an example of knowledge that Descartes called unshakeable knowledge. It is further clear that even the mind starts from known to unknown, and this is general to all rationalist philosophers who have discussed on how mind attains knowledge or ideas. Therefore, illusion and belief are the starting point of assessing knowledge whereas, reason and intelligence could be described as the processing stage towards precision which marks the attainment of knowledge. It should be noted however that the simile of the divided line is a further illustration on the simile of the sun as represented in the above diagrams.

**2. 19 The Simile of the Cave**

Simile of the cave is the third in the series of the similes employed by Plato to explain the nature of human understanding. In the account of the simile of the cave, it was reported that some prisoners were kept in cave like a tunnel. In the cave, they were bound in such a way that they could not freely turn their necks. In their front is something like a wall where the ray of the light from outside projects moving objects to them. This is what they were used to for a long period of time until some of them escaped from the cave to the outside world,

where they were able to see things differently. In the simile of the cave, Illusion represents the prisoners tied in the cave while (Belief) stands for the escaped prisoner from the cave who was opportune to see real object in its true nature outside the cave. While outside the cave, he was able to reason by comparing the real object outside the cave with the shadows that they were used to in the cave. This access to real objects in the world outside the cave combined with reasoning led the prisoner to the level of intelligence and having vision of the form of good, which is the ultimate expectation of man according to Plato. The prisoner in this simile represents ignorant person, who after going through the four stages explained above in the line of cognition become dialectician: the real knower in Plato's idea. It is however evident that the line of cognition and other similes are template for teaching model to train learners in the act of critical thinking. This will afford the learners the opportunity to know what to do at what stage of consideration before a final judgement can be made. And when the right judgement is made, the one who makes it is a dialectician in the understanding of Plato. That is someone who can claim knowledge of something based on evidences to support what he claims to know.

Furthermore, in an attempt to describe a dialectician, Plato tries to discuss the mental operations involved in knowledge production through the means of dialectic procedure. Dialectic is Plato's procedure used in the education of the philosopher- king as accounted for in *The Republic*. Dialectic is an exercise of the mind that coordinates the activities of reasoning and sensory organs. At the level of dialectic, the mind refuses to relent in its inquiry through pure thought until it grasps the good in itself. This is true because the visible realm fires one's imagination to aspire for detailed information about an object or ideas beyond physical or corporeal object until one has apodictic certainty about the object of study. Grube[1] opines that the visible realm is primarily ontological that is, it concerns the truth or reality as it appears, while the intelligible realm is epistemology because it concerns clarity of the state of the mind and how mind knows. Based on this assumption, Grube contends that simile of the line could be used to understand both the metaphysics and epistemology of Plato. Succinctly, through reading Plato's similes one can understand his idea about the theory of reality as well as theory of knowledge. In other words, the similes in *The Republic* gave the synopsis of Plato's philosophical ideas.

What is dialectic and who is a dialectician? Etymologically, dialectic comes from Greek verb '*legesthia*' which means 'to discuss, to converse'. Plato himself describes it as '*dunamis dialegesthia*', that is, ability to converse. In its pristine meaning however, dialectic

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[1] G. M. A. Grube, Plato's Thought London: The Athlore Press, 1964

is the art or process of discourse[1]. In Hegel's[2] account, dialectic originated from the ancient Greek philosophy probably with old Eleatic Zeno. Dialectic is therefore an act of self-discussion and a tradition in philosophical inquiry whereby a researcher attempts to engage in self-question and answer to access truth. Dialectic has been made familiar in the teachings of Socrates and the dialogue of Plato. Hegel corroborated Plato and explained that dialectic has three stages namely: thesis, anti-thesis and synthesis. Thesis stage is designated as the stage of the abstract understanding. Anti-thesis stage is a stage of representation of the incompleteness of the first by showing its obverse side i.e. negative reason. The third stage of synthesis is called speculative stage or stage of positive reason[3]. These stages are best described by any of Plato's similes. By implication, Plato's dialectic implies an educational procedure that will enable the Guardian to ask and answer questions most scientifically to educate the philosopher kings. The only method of inquiry which systematically attempts in every case to grasp the nature of things as it is in itself. The dialectician therefore, is one who is able to give an exact account of the essence of each thing; one that can define and give an accurate description of things. The aim of dialectic is to arrive at the summit of the intelligible world and grasp the very nature of that trinity of Beauty, Truth and Goodness which Plato postulates to be the ultimate of man's knowledge and understanding. These three qualities are what Plato used to describe human understanding as well as human behaviour. He opines that until man is able to identify beauty before he could make beautiful choices. Similarly, people only behave goodly when they can identify good deeds and act accordingly. Thus, a dialectician is an educated man in the real sense of the word. An educated man is one whose knowledge has comprehensive understanding of morally, socially and intellectual characters.

## 2. 20 Critique of Plato's Dialectics Approach

Plato's dialectics is the system designed through Socrates dialogue with others to give a systematic approach to the use of logic or philosophical teaching pedagogy in education process. Plato's dialectic enunciated pedagogical skill needed by teacher to educate learners into a knowledgeable personality. This was well demonstrated with the encounter of Socrates with Meno's slave boy. However, various similes were also used by Plato to further explain levels of understanding. The levels of understanding were confusing at a point the levels were at two levels- visible and intelligible world. At another instance, the two realms were

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[1] Ibid p.101
[2] J. G. Hibben, (Trans.) Hegel's Logic: An Essay in Interpretation. NY: Charles Scribner & Sons. 1902,P11-12
[3] Ibid p.12

subdivided into four levels namely: illusion-belief-reasoning-understanding. Only one model should have been well developed to avert confusion of ideas.

Nevertheless, as confusing as these levels appear, it is still plain that the explanation has some educational values and relevancies. For instance, the simile of the sun addressed Plato's understanding of human nature which an ideal teacher should be aware so as to handle the process of teaching better. This understanding can even assist teachers' professionalism of detecting those learners who may not be able to go beyond the level of illusion and cater for their educational need. While one thinks that the line of cognition gives directive to teacher on how content of education should be organised to actually aid understanding. It is also noted that the use of demonstration in combination with Socratic questioning are two best forms of pedagogical skill to be used in making knowledge permanent and enduring

Plato emphasised structured questions which can assist the learner to recollect ideas in his mind; but the format of the question's structure was not discussed. And without the knowledge of questioning, what will happen is what Kant called absurd question which leads to the laughable spectacle of one person milking a he goat and another holding the sieve underneath. Another important area of dialectic weakness is elimination of instruction for questioning. Socrates opines that it is better to use question in shaping learners' opinion but one thinks instruction cannot be removed from the processes of teaching and learning. Questioning cannot do the work of instruction; there is need for teacher to give certain guideline to learners. Nevertheless, another philosopher to examine is Paulo Freire and his theory of conscientisation pedagogy.

## 2. 21 Paulo Freire's Conscientisation Pedagogy and Education

Paulo Freire's pedagogy of the oppressed is a proactive approach to the system of imparting knowledge to learners. A progressive method which should raise the consciousness of the learner is proposed in the treatise of Freire's titled *Pedagogy of the Oppressed* (conscientisation). The system is expected to promote critical thinking between the teacher and the students, not a system that promotes domination and oppression which Freire tagged 'banking concept of education'. He proposed 'problem-solving education' as a better option to the former. The banking concept of education is described as an instrument of oppression because the learners are treated like an object as against dignity that human beings deserve. It is a dehumanizing concept as observed by Freire. Banking concept of education is one in which students are treated like receptacle tank where water is deposited, and recovered at will. In another version, it is like a situation where students are treated like bank accounts,

where money can be deposited and withdrawn at the will of the depositor. In the description, students are depositories or bank account while the teacher is the depositor. Instead of communication, teacher issues communiqué (note) and makes deposits which the students patiently receive, memorize and repeat[1]. Freire lamented that with this kind of education, the system is suffering from narration sickness. He further says that this kind of education just makes people file away through lack of creativity, transformation and knowledge in misguided system[2], whereas, knowledge emerges through invention and re- invention, restless, impatient continuing, hopeful inquiry that human beings pursued in life. All these are not being allowed to thrive under banking concept of education. Thus, Paulo Freire's conscientisation pedagogy falls under critical thinking in education.

Freire contends that the banking concept of education or the conventional teaching method mirrors oppressive society, where learners are not given chance for self-development. In his description of the oppressive society, he says it is dehumanisation process because learners are treated like object (things) and not human beings whereas in his thinking, there should be mutual relationship between the teacher and the learners if real knowledge is to be attained. This, due to the process involves the student seeing themselves as existing to serve the teacher. He identifies about ten features of banking concept of education that show the current mode of education as an agent of oppression:

I. The teacher teaches  and the students are taught;

II. The teacher knows everything and the student knows nothing;

III. The teacher thinks and the students are thought about;

IV. The teacher talks and the students listen- meekly;

V. The teacher disciplines and the students are disciplined;

VI. The teacher chooses and enforces his choice, and the students comply;

VII. The teacher acts and the students have the illusion of acting through the action of the teacher;

VIII. The teacher chooses the program content, and the students (who were not consulted) adapt to it;

IX. The teacher confuses the authority of knowledge' with his or her own professional authority, which she and he sets in opposition to the freedom of the student;

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[1] Freire, P. *Pedagogy of the Oppressed.* M. B. Ramos (Trans.) New York: Continuum Publishing Group, 1970. P.72
[2] Ibid p.72

X.    The teacher is the subject of the learning process, while the pupils are mere objects[1].

Going through the highlight of the banking concept of education as disclosed above, an emerging question to the features about the teaching pedagogy is; do all these steps dehumanise students? Besides, are some teaching and learning criteria not submerged in all the above? To start with, one believes that in the process of teaching and learning, the teacher needs to give instruction that can aid students' learning. Also, in the choice of the learning content, that is, what to be learnt, it has to be uniform and relevant to the perceived need of learners. Therefore, to say that learners have to be part of curriculum choice appears to be difficult. One, if students are involved in the process they may likely suggest irrelevant contents due to their level of experience.

At any rate, Freire has rightly suggested that to correct the anomaly in the banking concept of education, the system is to be transformed so that education will make people 'beings for themselves' rather than 'being for other'[2]. Therefore, the perceived abnormal processes should be contemplated upon to have an educational system that can guarantee real knowledge to students. A pedagogy that can actualise students' potential self-reliance and that can engender development such as desired by Nigerian philosophy of education. In that wise, there is need for the teachers to be aware that teaching critical consciousness to students is very necessary if actually self-reliance and development are to be attained through educational system. Therefore, teachers should embrace critical thinking pedagogy to transform the system, as adapted from Freire. Teacher's activities in the course of teaching and learning should include the following: his effort must coincide with those of the students to engage in critical thinking through dialogue, his effort must be imbued with profound trust in people and their creative power. To achieve this, teachers must be students' partner in their relationship with them. Also, teachers should act to organise a process which can lead to generating real knowledge. In other words, teacher should see himself as a moderator of dialectic discourse that will generate knowledge. Freire posits that those who are truly committed to liberation of soul must reject banking system of education in its entirety and adapt a concept of women and men as conscious beings[3].

Freire suggests problem-solving pedagogy instead of banking pedagogy. The problem-solving makes use of dialogical relations. Through the pedagogy in education, the

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[1]Freire, P. *Pedagogy of the Oppressed.* M. B. Ramos (Trans.) New York: Continuum Publishing Group, 1970. P.72
[2] Ibid p.74
[3] Ibid p.79

teacher of the students and the students of the teacher cease to exist and a new term emerges: teacher-student with the students-teachers. By implication, this means that the teacher is no longer merely the one who teaches, but one who is himself taught in dialogue with the students. He also teaches while being taught. In the process, both teacher and students jointly become responsible for knowledge growth. Freire says that;

> The role of the problem-solving educator is to create together with the students the conditions under which knowledge at the level of 'doxa' is superseded by true knowledge, at the level of the 'logos' (speech)[1]

In a similar analysis, Freire compared the colonial bequeathed education system with banking concept; where oppressor and the oppressed represented by teacher and student respectively. This situation was created by human beings themselves as observed by Freire. Therefore, the effort of liberation lies with the people themselves because if human kind creates social reality, then the transformation of that reality to what favours them is a task for humanity[2]. This submission suggests that the pedagogy of the conventional method can be transformed into a more rewarding pedagogy which lies in dialectics. It is however evident that both Freire and Fanon in their books, The Pedagogy of the Oppressed and The Wretched of the Earth championed the same course of improving education in the third world countries in which Nigeria is among. The difference between the two philosophers is that, while Fanon is concerned with all aspects of life: economy, politics, social welfare, and education and so on, Freire was particular with education even to the extent of suggesting alternative system to the one condemned. Besides, Freire also discussed human nature by differentiating the activities of man and other animals. He postulates that of the incomplete beings, man is the only one that treats not only his actions, but his very self as the object of reflection; this capacity distinguishes him from the other animals, which are unable to reflect upon self. So, with this quality man has potentials to liberate himself from any captivity he feels may be detrimental to his well-being.

Therefore, human beings because of their awareness of themselves and of the world exist in a dialectical relationship between the determination of limits and their own freedom. This is because they are conscious beings. Thus, men and women respond to the challenge with actions called 'limit acts': those directed at negating and overcoming, rather than passively accepting the given. In order to achieve humanization and true education, it is

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[1] Freire, P. *Pedagogy of the Oppressed.* M. B. Ramos (Trans.) New York: Continuum Publishing Group, 1970. P..81
[2] Ibid p.51

absolutely necessary to surmount the limited situations in which people are reduced to things[1]. Under development represents a limited situation: a characteristic of the third world societies which needs to be eradicated via qualitative and quantitative education system.

Pedagogy of the oppressed provides a plain ground for real education to take effect; where everyone is a major stakeholder in what affects him and his existence. The theory emphasises the principle of merging theory with practice, reflection with action unlike banking concept of education that focuses only on study of theories.

## 2. 22 Critique of Freire's Pedagogy of the Oppressed

Freire's propositions are lucid and self-explanatory. It is a treatise that discussed education problems philosophically where a predominant mode of teaching being described as banking system of education was identified as the major problem inhibiting critical thinking in learners. In other instances, Freire equates the colonialist's bequeathed education system as an institution left behind to serve the interest of the imperialists as well as being their indelible legacy. He described the relationship between the teacher and students as the relationship that exists between the slave and his master. It then means that to decolonise the system of education, there should be a shift from the conventional mode of education which only produce prosaic minds to a better system that allows self-learning in a relax and conducive environment where critical thinking pedagogy can thrive.

It is implied that Freire advocates for mutual relationship between the teacher and student, mentor and mentee where good relationship should promote knowledge acquisition unlike the prevalent situation where students or mentee are treated like object. This is what Ogunyiriofo referred to as conformist syndrome at lower level of education and as authoritative at the tertiary level of education. Also, it is suggested that teaching and learning should take a form of dialogue so that critical thinking consciousness can be created for learners to develop intellectually. However, as a philosopher who is concerned with effecting change in the teaching methodology, Freire should have given model for critical pedagogy at the expense of conventional method just as Plato did with the method of dialectic. But since the abhorred pedagogy is known to stakeholders in education, then further assignment can be completed by fashioning out method for the workability of critical thinking pedagogy in teaching and learning processes. Freire has belled the cat by exposing the method and its intrinsic and extrinsic weaknesses. The weaknesses of the conventional pedagogy were clearly highlighted by Freire, although some of the listed need further explanation for them to

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[1] Freire, P. *Pedagogy of the Oppressed.* M. B. Ramos (Trans.) New York: Continuum Publishing Group, 1970. P.103

be sustained. For example, that the teacher chooses the programme content and students adapt without being consulted, seems to be in order based on teachers' professional conduct of organising object and content of learning that best benefit the learners. In such situation learners need not to be consulted because inexperience might affect their choices of content and object of learning.

**2. 23 Nigerian Educational Practice and Critical Thinking**

An educational practice could be described as what can be found in a chosen form of educational system. Educational system however, is defined by Lawal[1] as related education parts whose objectives are for the overall goals of a society's educational development. Nwankwo[2] asserts that the outcome of educational system is in the form of trained, qualified school leavers and graduates with appropriate skills, knowledge and values. Similarly, Adeyinka defines educational system as the way the people in a particular country or society carry out their educational programmes. Hence by these scholarly submissions, educational practice could be equated with educational system. In other words, educational practice of a given society will determine how its educational activities are being conducted. This is expected to have its background in the national policy statement on an educational practice; such as provided for Nigerian society by the National Policy on Education (NPE). It can therefore be summed up that an educational practice includes whatever that goes on within an educational system especially in designated places called educational institutions. Practices that occur in the institutions include teaching and learning which the study focused. Other activities include administrative machinery set up for the smooth running of the school system.

However, the aspect of the educational practice to be examined in this study is the one that affects teaching and learning. Pedagogy in a plain language suggests the means of imparting knowledge and skills to the learners. The choice of pedagogy by the teachers at various level of education determines how aptly the educational objectives could be achieved. Nevertheless, many factors are responsible for learner's acquisition of knowledge and skills; among these are the school, society, peer group, teacher, and so on. In all these, the teacher and the choice of pedagogy are quintessential in realisation of educational objectives. Thus, ineffectiveness in teaching and learning of critical thinking skill en-route formal education system could be attributed to teacher and modes of teaching. In a study,

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[1]Lawal, B. O. *Comparative education*. Ibadan: stirling-Horden publishers. P5
[2]Nwankwo, J. I. 1982. *Educational administration, theory and practice*. India: Vikas Publishers

Ogunyiofo[1] identified two types of teaching models predominant in Nigerian public schools and which undermine the acquisition of critical thinking skill. These teaching models are named Conformity Model of Education (CME) and Authoritarian Model (AM). The scholar further submits that conformist model operates at both primary and secondary education levels while authoritarian model occurs in the tertiary level of education. This discovery substantiated what Nduka[2] had earlier termed indoctrination and authoritarianism in educational practice.

These findings of Nigerian educational scholars further attests to the fact that despite the national policy statement on the importance of critical thinking and creativity in educational acquisition, the method of teaching is still posing a stumbling block on path to the acquisition of vital skill for human growth, development and sustainability. It can also be deduced from the foregoing that the content of policy statement sometimes may be different from what actually happen in reality. In other words, policy statement may be ideal and accurate but the method of implementation may be defective and therefore undermine the set goals. Nevertheless, Nigerian educational practice would not be complete without the inclusion of indigenous education which predated western education in Nigeria. Educational practice under the system equally emphasised acquisition of critical thinking skill through African philosophy otherwise known as traditional wisdoms. One may be tempted to believe that the influence of African philosophy on our educational system was responsible for the conformity and authoritarian models. In the African philosophy, it is an axiom that children should be seen, not heard which might have been responsible for the passivity of learners under conformity and authoritarian models. But a critical analysis shows that it could be mis-interpretation of the philosophy because the same traditional education emphasised creativity through learning by doing in the case of apprentice mode of learning.

Lawal[3] reported that traditional and Islamic educations in concomitant with their form of pedagogy were in place in Nigeria before the western form of education. The traditional education is described as one given to learners outside the school setting. Fafunwa[4] identified the objectives of traditional education among others as follow:to develop intellectual skills; to develop sense of belonging and to participate actively in the development of the society. In order to achieve these objectives, certain pedagogical skills drawn from the traditional wisdom were employed. The pedagogical skills include storytelling, using of proverbs,

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[1]Ogunyiofo p150
[2]Nduka 1974
[3]Lawal, B. O. 1999. *Comparative education*
[4]Fafunwa, A. B. 1974. *History of education in Nigeria*

solving puzzles and so on. It could therefore be deduced from the trajectory teaching processes from traditional education that, teaching critical consciousness is embedded in African traditional education before the advent of western education. It also shows that over dependence on western pedagogy totally annihilated the traditional pedagogy and thus eroded the in-built critical consciousness which have produced highly rational individuals in the history of Nigerian educational practice.

Conversely however, the inability of teachers to teach or ensure critical thinking tendency in learners of today, may not be unconnected with the kind of training they received. Ogunyiofor[1] pointed out that in the history of teacher education in Nigeria and many other developing societies is marked by training that emphasised submission, unquestioning, obedience and respect for constituted authority. These attributes were seen as virtues.

## 2. 24 Appraisal of Literature

As reported in the background, two distinguished Nigerian scholars and educational philosophers have related works on critical thinking pedagogy and Nigerian educational theory and practice. Okoroh in a Ph.D thesis dwells on model for teaching critical thinking to student teachers in the tertiary institutions. While Nduka in a journal article called for re-training of teachers so as to reflect the pedagogy of critical thinking. In these two studies, it is obvious that critical thinking pedagogy is necessary to improve the quality of education received under the Nigerian educational practice. Also, it is a kind of pedagogy that will assist the teachers in producing critical thinkers who could develop creativity from critical thinking and finally promote self-reliant education.

It should also be noted that as academic endeavour, the two works cited are not comprehensive enough to cover all areas where critical thinking pedagogy is needed. Thus, Okoroh's study focuses only on the teachers under training, although these prospective teachers are expected to go out and adopt critical thinking pedagogy in practice. But a larger percentage of practising teachers lack the pedagogical skill and this means that only teachers under training would be exposed to the idea. While for Nduka's study, the idea was a bit encapsulated both theory and guide but there should be a model of what and how the pedagogical skill is to be used or taught. In view of the foregoing, this study is to fill the gap between the prospective teachers and the practising teachers by providing comprehensive study through guide and information about the critical thinking pedagogy in relation to educational theory and practice.

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[1]Ogunyiofor. 1992. P104

However, the works of philosophers reviewed in this study have clearly shown how important reasoning and critical thinking can be to man for the attainment of knowledge development. The research therefore believes that the relevance and application of critical thinking pedagogy will show through appropriate pedagogy by teachers who are the major and most important stakeholder in the implementation of educational philosophy and practice in Nigeria and elsewhere in the world. The ideas reviewed equally show different areas of human life where critical thinking is useful to man. And since education is the most appropriate channel to reform human beings, then the idea is necessary in the Nigerian educational system.

At any rate, the literature reviewed also showed that some of the philosophers whose ideas have been used as the theoretical basis for this study are purely theorists in their postulation while some also are more pragmatic that even guidelines on how critical thinking can be gleaned into educational practice for a greater achievement. Another important difference between the two groups of the philosophers is that some are not educational practitioners like others who have practical guides to how critical thinking can assist in education processes. Thus, theoretical implications of critical thinking are apparent in the works of philosophers like Aristotle, Kant, Descartes, Hume and Fanon while pedagogical implication is inclusive in the theories of Plato, Dewey and Freire through the given guidelines on the practical teaching of critical thinking in educational system as discussed earlier. For instance, Plato gave a practical demonstration of critical thinking pedagogy in Meno while Freire identified what could be done to inculcate critical thinking ability in learners.

The two major aspects of theory and practice underscore the main theme of the study which is to show relevance of theories and their application in an educational system, for instance, Aristotle's use of syllogism through inferences, Descartes's methodical doubt of inquiry, Kant's transcendental logic, Hume's skeptical doubt and Fanon's pedagogy of consciousness provide the theoretical relevance of critical thinking while Plato's dialectical discourse, Dewey's reflective thinking and Freire's conscientisation pedagogy provide practical application of critical thinking theories under educational system. One then feels that the chosen philosophers and their ideas have justification for the likely proposal of including critical thinking formally into the theory and practice of education for sustainable development and human growth. However, a critical look at Nigerian educational theory and practice shows that there is a wide gap between the two because the form of teaching done, does not allow for acquisition of critical thinking skill especially going by the activities of

some teachers at all levels of education. This very problem had been mentioned by scholars in Nigeria. Okoroh[1] identified two forms of non-critical teaching in Nigerian schools as conformist model and authoritarian model. He says that conformist model operates in both primary and secondary schools while authoritarian occurs in the tertiary level of education. Authoritarian Model was aptly summarised by Bligh as cited by Okoroh[2] that, 'In lectures, the teacher dispenses his authoritative wisdom, and the students are expected to accept it uncritically'. This methods that kill creative ability of learners through teachers' activities still happen in Nigerian schools. If application of critical thinking pedagogy can be reawakened or energised in Nigerian educational philosophy and practice, there is every tendency that the quality of education received in Nigeria will improve. Okoroh further pointed out that lecture method if used only is a means of oppressing the learners just as Freire argued in the banking concept of education system. This mode of teaching and its attendant implications persist because many prospective teachers take after their mentors in the manner of teaching. Similarly, Nduka[3] argued for training of new breed of teachers and the retraining of the existing ones as corrective measures to lack of critical thinking pedagogy in schools which is the main focus of this study. It is when teachers are educated or given training in critical thinking pedagogy that the passive mode of teaching and learning could be changed. Nduka, like some of the philosophers reviewed also gave practical suggestions on how critical thinking pedagogy can be achieved. He advised that instead of indoctrination and authoritarianism, teachers should help their students to develop critical spirit by encouraging them to experiment, ask questions and engage in the give and take of critical discussion. He opined that teachers should adopt methods which awaken rather than stifle children's students' latent curiosity in a rapidly changing world. It is only understanding of critical thinking pedagogy by teachers that can guarantee this.

However, it may be asked that despite all these professional discourse on the relevance and application of critical thinking pedagogy to Nigerian education theory and practice, why the use of negative pedagogy? National Policy on Education is the guiding document on Nigeria educational theory and practice. The document on Higher Education including professional education states that:

> The teaching and research functions of the higher
> educational institutions have an important role to play in

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[1] Ogunyiofor p150
[2] Op. cit p150
[3] Nduka, A. O. 1974. "African Traditional System of Thought and their implication for Nigerian Education"

national development particularly in development of higher level manpower[1]

The above policy is one that concerns producing critical or creative thinking individuals who can play important roles in national development especially in the area of higher level manpower. In the same vein, among other objectives stated for higher education is:

The development of intellectual capacities...The acquisition of both physical and intellectual skills which will enable individual to develop into useful members of the community[2].

A critical minded person is one who can contribute to the development of community and acquire both physical and intellectual skills, but there is need for the use of appropriate pedagogy to tease out these qualities in an individual. His is where critical thinking pedagogy becomes necessary and should be given recognition in the process of higher education. Nevertheless, inability of the pedagogy to be made functional in the higher education by many teachers can be attributed to lack of information about such pedagogy over the non-critical minded teachers. At any rate, having shown the relevance of critical thinking and critical pedagogy through the theories of philosophers reviewed, it is believed that if there is a paradigm shift for its practice, education system through critical teaching would witness tremendous improvement. The next chapter is to discuss the philosophical tools in doing philosophical research. So, the next chapter is to address methodology used in carrying out the study into critical thinking pedagogy.

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[1] NPE. P22
[2] Ibid. p22

## CHAPTER THREE

## METHODOLOGY

Methodology as an aspect of research explains the methods or modes of carrying out research work by a researcher especially in the academic circle. This research is in the field of philosophy of education and makes use of philosophical research method with its components such as analytic and historical modes of inquiry as well as prescriptive or constructive mode of philosophical inquiry. Analytical mode is adopted to analyse the major concepts in the study while historical mode is also adopted as means of tracing the historical ideas of the chosen philosophers, that is, Plato and Paulo Freire. In addition, as a study in the field of education, and as part of attribute of philosophy to discuss and prescribe possible solutions to an identified problem, the study will involve prescriptive mode as an avenue to give prescription of critical thinking pedagogy as an effective teaching pedagogy model fashioned after the ideas of two chosen philosophers.

The general concept of methodology has it that method means the practical and theoretical mastering of reality. Alexander[1] however opines that the concept has two ways approach. That is, practical and theoretical activities follow different methods. Thus, he described practical approach as the ways of doing things and corresponding human skills that have been historically formed and socially established while theoretical activities such as philosophical activity is characterised by the modes of activity of the mind resulting in the finding of truth and rational solution to problems. A methodology therefore, is a system of principles and general ways of organising and structuring theoretical and practical activities[2]. Methodology is also to be described as a system of socially approved rules and standards of intellectual and practical activity. In other words, methodology could be a way or process of integrating the young generation into the business of a particular discipline through laid down principles and precepts. It is obvious from the foregoing that methodology has two approaches: practical and theoretical. Both theoretical and practical activities in research are also known as qualitative and quantitative researches. Nevertheless, methodology in philosophy and philosophy of education fall within the purview of qualitative or theoretical research with special modes of activities.

Philosophers have compared methodology to a torch, illuminating the road for the travellers in darkness, where the researchers are the travellers and methodology is the illuminating torch that provides light for them to see clearly. It is assumed that even a lame

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[1] Alexander, S, 1983. *Dialectical Materialism.* Moscow: Progress Publishers
[2] Ibid p.34

man who chooses the right road will arrive ahead of the aimless wanderer, that is, someone who conducts researches without methodology or guiding principles. Okoroh postulates that methodology refers to the investigative approaches employed in the study of phenomenon or events[1]. Therefore, the types of research engages in by the researcher determines the type of methodology to be used. Nevertheless, different disciplines have their research methodology. As a result of this, the research under focus is in the philosophy of education which shares affinity with pure philosophy. In other words, this study adopts the philosophical research method which has four basic principles of speculative, analytic, historical and prescriptive modes of doing philosophy. It is also noteworthy that philosophical research is a kind of qualitative research which does not make use of statistical instrument as popular to the quantitative kind of research methodology. It is library based research. Nevertheless, philosophical research according to Mason as quoted by Ntui[2] described what methodology does in the process of research. He submitted that:

> A philosophical research gives an insight into the nature of man, rendering and reminding us of aspects otherwise forgotten, underestimated or totally neglected, persuading us to look at the philosopher in certain ways as a result of which we treat him in particular way. Because he is not content with "what is" but "what ought to be"

The above submission by Mason gives the synopsis of what the activities of philosophers and philosophers of education entail. Besides, it points out the importance of philosophy in all man's endeavour which aimed at improving human activities and also to discover new ideas through which human life could be improved by advancement in what has already being achieved, that is, 'what is' to what ought to be at time of investigation. Since it is general axiom that all knowledge is tentative and subject to further improvement whenever the insight and desire to do so arise, then it becomes imperative on researchers to revisit any acclaimed knowledge for improvement. This assertion was further supported by Okoroh[3] that it is difficult to find any meaningful research without some levels of abstraction. Perhaps, this is the reason why philosophy and philosophical methods is unique and relevant in any field of human study. So, methodology in academic processes is a means through which disciplines solve an identified problem and also contribute to knowledge development.

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[1] V. N. Okoroh. 1991. A Philosophical Model for Teaching Critical Thinking to Student Teachers in Tertiary Institutions of Education PhD. Thesis. Dept. of Teacher Education, University of Ibadan.
[2] Ntui, V. 2014. Plato, Buber and Bourdieu as Philosophical Tripod in Academic Mentoring in Nigerian Higher Education. Unpublished PhD. Thesis: Dept. of Teacher Education; University of Ibadan. P.8
[3] ibid

Therefore, research method in philosophy of education embraces philosophical research method to solve educational problems and as well contribute to knowledge.

## 3.1 Methods in Philosophy of Education

There are four major methods in philosophy namely: speculative, analytic, historical and prescriptive methods. Speculative approach in philosophical research is as old as the discipline of philosophy itself. It is even seen as the core of philosophy because philosophy is described as baby of wonder. Put differently, speculation is an entry point into philosophical compound of investigation and it is a hypothesis about and on all things[1]. Speculative approach is method of research applied to the study of phenomenon especially where the scientific approaches or instrument are not possible or applicable. By definition, Kneller[2] described speculative philosophy as a way of thinking systematically about everything that exists. In other words, speculation is the instrument of metaphysics which is the study of reality and effort to discover reality is an attribute of any right thinking man. Thus, speculation is implied in all studies including the 'posteriori' studies or studies through the senses. Speculation is an attempt to find coherence in the whole realm of thought and experiences[3]. Furthermore, Brubacher was quoted by Enoh that speculative philosophical approach tries to put the various parts together into some synthesis or mosaic[4]. This function makes speculative method a coordinating agent in philosophical researches. Scholars however have extrapolated that philosophers are not satisfied with the study of particular aspect of reality because the human mind seeks to understand thing as a whole. So, in a wholesome understanding of phenomenon, speculative approach is to be used. That is to say speculative philosophy is a search for order and wholeness applied not only to particular items or experiences but to all knowledge and all experiences. Nevertheless, speculative activities of philosophical modes of research entail criticism which does not necessarily mean negative appraisal but rational, impartial and articulate appraisal whether positive or negative[5]. And the utmost necessity of this kind of criticism is to view issues from another viewpoints so as to have a comprehensive understanding of phenomenon under study. Similarly, Bamisaiye[6] submitted that speculative approach in philosophical research is generated by an attitude of wonder about the world and its inhabitants including man. This

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[1] Iheanacho, A. A. 2012. *Philosophy of Education: Principle and Applications*. Ibadan: Stirling Horden Publishers Ltd.
[2] G. F. Kneller. 1971. *Introduction to the Philosophy of Education*. P93
[3] *Ibid* P2
[4] Enoh, A. O. 1995. *Invitation to Philosophy of Education*. Ibadan: Stirling- Horden Publishers Ltd. P. 7
[5] Oladipo, O. 2008. *Thinking About philosophy: A General Guide*. Ibadan: Hope Publications Ltd. P.36
[6] R. Bamisaiye. 1990. Philosophical Research Method in Education.

points out that for an in-depth understanding of a phenomenon, there is need for the understanding of its origin or the cause of its existence and this is the essence of speculation in philosophical research. Bamisaiye further affirmed that speculation fires man's imagination to see ideas in a new perspective and make recommendation according to the perspective. This assertion points to the fact that one needs a better understanding of the concept of critical thinking to appreciate the negative effects of its underutilisation in educational development of an individual and a society as a whole.

Also, philosophy and philosophy of education make use of prescriptive approach in their study because prescriptive philosophy seeks to establish standards for assessing values, judging conduct and appraising art[1]. In other words, prescriptive method of research in philosophy of education aims at setting standards, criteria or model for assessing values in education and as well to determine what is considered good or bad conducts in education. It is also to set parameters for appraising the art of teaching and learning in education enterprise. Based on this premise, philosophy of education often makes effort to suggest or prescribe better pedagogy in teaching and learning processes. Fiscer[2] added that philosophers who are interested in prescriptive analysis see it as helping set patterns for ways in which things can be done better in the future. It should be noted however that activity of philosophers will not be complete if it does not provide a better alternative to one being criticised. That is what Oladipo[3] refers to as quintessential philosophical task; that is, making sense of fragmentary human experiences through generation of visions that can serve as guides to life. Similarly, Enoh[4] opines that prescriptive goes beyond analysis of concepts and and issues to the establishment of criteria for evaluating the concepts and issues of analysis. What can be deduced from the plethora ideas about philosophical method is that there is no clear demarcation point between the four major modes of doing philosophy and philosophy of education. This approach is mostly used on issues that are judgemental. It is relevant in this study because a verdict is expected at the end of the research work between conventional pedagogy and proposed critical thinking pedagogy. Moreover, each individual is either consciously or unconsciously judgemental in his day to day activities. Therefore, it is imperative for one to be well grounded on the issue of making the right judgement. This includes issues that affect personal dealings and general public.

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[1] ibid

[2] J. fiscer, 2009. Ethics. *Internet Encyclopedia of Philosophy*.

[3] Op cit. p.38

[4] O. A. Enoh, 1995. *Invitation to Philosophy of education*. P.6

The third method of doing philosophy or employ by both philosophy and philosophy of education is analytic approach. This method focuses on words and meaning and it is acclaimed the most widely used nowadays. This claim may be as a result of the fact that majorly in recent time, what the philosophers' do most is analysis prescriptive philosophy has been left with the ancient philosophers who appear to have delved into virtually all normative issues. The method fosters accuracy and precision especially with the use of language. It equally ensures that words are used logically without contradiction or ambiguity in meaning. Analytic approach also assesses the different meanings that concepts or words carry in different context. Kneller[1] explains that the approach shows how inconsistencies may arise when meanings appropriate in certain contexts are imported into others. In the idea of Oladipo[2], he argued that conceptual analysis is not only simply to define concepts but it involves the establishment of logical relationship between a concept and other concepts where meanings are assumed to be less problematic. Mother philosophers are more concerned with examining, clarifying and questioning the use of concepts and propositions and the rationale behind such uses in given or hypothetical situations[3]. Also, analytical approach to research is based on objective, reflective thinking, critical questioning and justification of research questions. Contemporary philosophical analysts P.H. Hirst and R.S. Peters[4] gave a clear expression of the goal of conceptual analysis. In their words;

> Conceptual analysis is to get clearer about the types of distinction that words have been developed to designate. The point is to see through the words, to get a better grasp of the similarities and differences that it is possible to pick out. And these are important in the context of other questions which we cannot answer without such preliminary analysis.

It is observed from the above that the zenith point of the method under discussion is to reduce errors in thinking and promote human self-understanding as supported by Meroyi[5] that the purpose of analysis is to clarify the meanings of concepts which may have different meanings depending on their usage. This is further elaborated by Bamisaiye's postulation that methods of analysis is used because being analytic helps to synthesize ideas and world views which gives our research the intellectual strength that would make educational research

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[1] Kneller, G.F. 1972. *Introduction to Philosophy of education*. P.

[2] Oladipo, O. 2012. *Thinking about Philosophy: A General Guide*. Ibadan: Hope Publications. P.37

[33] Olufowobi, O. O. 2014. An Examination of the Nigerian Educational System in the Context of Dewey's Philosophy. PhD. Thesis. Dept. of Teacher Education. University of Ibadan

[4] P.H. Hirst & R. S. Peters. 1970. *The Logic of Education. London*: Routledge and Kegan Paul. P. 8

[5] Meroyi, S. I. 2002. The Relevance of Utilitarianisim in Nigeria Education. PhD. Thesis. Dept. of Teacher Education. University of Ibadan.

enriching to scholarship and to the scholars themselves[1]. In addition, Akinpelu[2] opined that philosophy in its modern idiom has had as its basic, and perhaps the most important function, an analysis of the concepts and fundamental issues and problems in whatever it is applied to. The fourth methodology in philosophy of education is historical approach which is hardly given recognition like the other three popular approaches earlier discussed. One thinks that unpopular nature of the method is perhaps because of its nature in philosophical researches where relevance of ideas is more important than the chronological historical account. As such, historical approach fused into other methods since the whole activity centre around re-examination of postulations of other scholars or philosophers. However, the method's description as captured by Enoh is interested in tracing the development of ideas over time and emphasising the logical relationship and thinking[3]. The relevance of ideas as focused by philosophical activities is what differentiates this method from the conventional historical accounts. It is obvious that the four major approaches in philosophy of education overlaps and cannot be separated in any meaningful philosophical enquiry. This was affirmed by Kneller that:

> ... all approaches contribute to the health of philosophy. Speculation unaccompanied by analysis soars too easily into heaven of its own, irrelevant to the world as we know it; analysis without speculation descends to minutiae and becomes sterile. Speculation, prescription, and analysis are all present to some degree in the work of all mature philosophers.[4]

Nevertheless, further efforts have been made by professional philosophers of education to make the discipline and its methodology more lucid and easy to understand. This was made especially for the incoming generation of researchers in the field of philosophy of education to be guided on how to carry out research that will actually bear the nomenclature of philosophy of education; particularly in an academic environment dominated by scientific or statistical mode of study. The crusade had been led by Akinpelu and others who have discussed at length on philosophical research methods at different fora. These scholars have not only discussed the volatile nature of the method, but they have even come out with stipulated format that can guide whoever chooses to work in the direction of philosophy of education. Thus, Akinpelu came up with nine steps of doing philosophical research in education. These stages are: identification of a broad area of research interest, familiarity

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[1] Op. cit.

[2] J. A. Akinpelu. 2005. Philosophy and Education. Ibadan: Stirling Horden Press. P225.

[3] Op cit. p 7- 8

[4] Op cit. p. 3

with the philosophical and non- philosophical, selection of a topic of philosophical interest, literature review on the selected topic, statement of the problem, in-depth analysis of issues in the problem, synthesis of the themes into thesis, counter objections to the thesis and conclusion[1]. In the same vein, Bamisaiye[2] came up with six chapter format for writing thesis in philosophy of education. These six chapters were anchored on introduction, review of literature, methodology, analysis of concepts, internal criticism and finally summary and conclusion. Babarinde,[3] another icon in philosophy of education in Nigeria, postulates five guidelines in philosophical investigation. These include isolation of significant concepts for clarification, making the isolated concepts into propositions or hypothesis, clarification by investigating the existing relationship between the isolated concepts and related others where logical rules such as entailment and inferences are employed. Furthermore, after thorough analysis of concepts which would allay fear of ambiguity come statements of how the concepts should be understood within the context of study. The final stage according to him is attempt criticism of the concepts by raising possible objection and counter objection to chosen concept. It is obvious that apart from being step by step in doing philosophy, the procedure as laid down by Babarinde actually informs any would be investigator in the field what to do and how to do it. This effort was further elaborated by Enoh[4] in what he titled, 'Writing Philosophically in Education' where the procedure is given an acronym CALDIS or six-way test of philosophical writing: critical, analytical, logical, integrative, speculative and dialectical. Nevertheless, the study specifically chose Bamisaiye's model of philosophical research procedure with six segments as follow:

**Step I**: Introduction- includes narrations of the background to the problem that give rise to the intellectual concern or curiosity. This includes statement of research problem which is expected to emanate from the background. The research questions also evolve from the statement of the problem as a guide to the investigation.

**Step II**: Review of literature which centres mostly on the philosophical bases or theories for the problem identified. This stage also includes review of previous work done on the chosen topic, here questions are raised, analyse, criticism, exposition and discussions backed-up with evidences or vivid allusions. For instance, the used of allegory, narration,

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[1] Op cit.

[2] Bamisaiye, O. A. 2012. Philosophical Research Methods in Education. Enoh & Babarinde. Eds *A Guide to Philosophical Research in Education*. Ibadan: Stirling-Horden Publishers Ltd.

[3] Babrinde, S. A. 1991. Education for Self Reliance: A Philosophical Analysis of Slogan. PhD. Thesis, Dept. of Teacher Education. University of Ibadan

[4] Enoh, A. O. 2009. Writing Philosophically in Education. *Nigerian Journal of Educational Philosophy*. Vol. 21 (1): 1-8

interview and so on are presented, while the section is rounded off by appraisal of the reviewed literature.

Step III: Methodology- should be mainly philosophical methods with clear articulation of the specific modes of enquiries adopted. The methods are to be discussed and their usage demonstrated by analyzing a target concept or issues in education from the identified problem for investigation.

Step IV: Analysis of major concepts- lucid exposition of the main ideas (concepts) or variables at the centre of the research are expected here. At this juncture, dialectics as philosophical tool comes into play where issues are raised, arguments and counter-arguments are given to analyse concepts.

Step V: As further analysis shows the contribution of the research to knowledge. The previous chapters were to be build upon to present an intellectual position for the study. Simultaneously, deconstruction of the view is given as a philosophical tradition vis-à-vis the construction or thesis. This is known as internal criticism and it is closely followed by counter and superior arguments in defense of the criticism; while the section is recapped with the practicability of the new stand in educational practice or theory should be clearly shown.

Step VI: Features summary, recommendations and conclusion of the study. The implications of the study are highlighted with suggestions for further studies after giving educational recommendations by the study.

## 3. 2 Philosophical Analysis of Teaching as a Concept

In Nigerian philosophy of education, it is believed that education is an instrument for national development and so, the formulation of ideas, their integration for national development, and interactions of persons and ideas that is, teaching and learning processes, are all aspects of education[1]. The process of education that actually elicits an interaction between persons and ideas is teaching. So, there is need for better understanding of the concept of teaching from philosophical point of view. Therefore, teaching as educational concept shall be analysed from historical and analytical perspectives.

Teaching can be described as an activity that helps to increase knowledge through organised tasks. Thus, all those skills and competencies given by our parents in our upbringing and training, our friends and peers during games and other ceremonies and even by nature around us constitute teaching[2]. This description qualifies everyone and any types of discourse as teacher and teaching whereas the concept is broader than this. Perhaps this

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[1] FGN. 2013. National Policy on Education. P.1
[2] Bello, J. Y. 1981. Basic Principles of Teaching. New York: John Wiley & Sons. P.30

popular description is responsible for the belief that just anybody can teach. Nevertheless, teaching historically began in Greece through the activities of the sophists. The group of the learned teachers who went from place to place teaching and charging some amount for the services rendered. But after the capture of Greece by Rome, the meaning of teacher becomes broadened and a kind of hierarchy was introduced. Thus, there were 'Literator' in the primary schools, while 'Ludi Magista or Rhetor' was teacher designate in Grammar schools. Words such as 'Lecturer', 'Professor' are used to describe teachers in the tertiary institution. It is therefore evident that the concept teaching cannot be understood without understanding who a teacher is. Teachers' activity that enhances learning is the main ideals of teaching. A teacher therefore is one who has special knowledge of his subject and his pupils. Kneller opines that teacher when licensed or given a certificate, he does not simply go out and teach; but he is morally obligated to teach well[1].

Teaching is profoundly associated with schooling due to the fact that things to learn must be deliberately and systematically taught; unlike other forms of teaching done by parents, elders, masters, trainers and so on. Teaching is an organised form of activities with intention of bringing about learning. So, as features of teaching activities, there is need for teaching to have the following as identified by Hirst and Peters[2]: teaching must be conducted with the intention of bringing about learning; it must indicate or exhibit what is to be learnt and it must do this in a way which is intelligible to and with the capacities of the learners. These characteristics of the concept of teaching differentiate it from other forms of teaching such as one done by parents, training an individual to be able to perform certain action and so on. In other words, any action or arrangement refers to as teaching must have a teacher, the subject matter (content) and method of passing the content to the learners. This shows that teaching activities go beyond just giving instruction or directing someone or group of people under the pretence of teaching them.

However, it should be made clear that teaching does not necessarily mean that learning will take place. In fact, scholars have pointed out that learning is possible without teaching, because man is can learn even without instruction. For instance, there can be spontaneous learning as a result of particular experience. Perhaps, the expression; experience is the best teacher, explains this better where one learns as a result of personal contact with the object of learning. This scenario explains the logical relationship that exists between learning and education; whereas this is not in the case of teaching. The issue is further enunciated by

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[1] Kneller, G. F. 1966. Logic and Language of Education. P108
[2] Hirst, P. H. and Peters, R. S. 1970. The Logic of Education. London and Henley: Routledge & Kegan Paul. P.76-84

Dewey in his book; Education and Democracy under the title 'Education as a Necessity of Life'. The chapter explains the importance of leaning to man for his existence and sustainability in life. In the idea of Martin Buber, teaching is not an act of verbal manipulation or dictation in which one person imposes himself on another, turning the latter into an object of his will expressed in speech. In other words, the predominant form of teaching where somebody says he is alpha and omega in the class is not a form of real teaching. A situation where teacher spits venom on learners if challenged on principle or ideas presented thereby subduing the learning spirit of learners. Buber asserts that teaching could not be a true dialogue if the teacher were construed as an instructor, one who simply mediates between the pupil and the subject matter. Rather, knowledge should not be transmitted but offered. In other words, teaching should make teacher familiarise himself fully with the subject he teaches and always take it into himself as the rich fruit of human activity. In corroboration, Soltis[1] thus identified that some modes of teaching seem to encourage the development of individualism, others conformity; and some model freedom and autonomy, others manipulative coercion and submission. All these forms are misconception of teaching whereas lapses in each of them disqualify them as an ideal form of teaching. Soltis attributed these to different forms of teaching practice namely: the executive approach to teaching, the therapist approach and liberationist approach to teaching. The executive approach encourages submission to the authority of the teacher, while therapist approach focuses on the transformative goal of developing of individual learner to become an authentic person and the liberationist approach include the development of a well-rounded person and freeing the mind through initiation into forms of knowledge and the development of certain intellectual and moral virtues. Among the three teaching models, the liberationist is the only one with true picture of activities that can be categorised as teaching activity.

In a similar vein, Fenstermacher and Soltis[2] berated the act of filling students' head with specified knowledge that has been selected, packaged and conveyed by others only keeps the student from grasping himself as a human being. It separates the student from himself by forcing him to attend, not to his own feelings, thoughts, and ideas but to sterile thoughts, images and attitude of others. This discovery ascertain that the kind of teaching activities going on in our schools are not true reflection of what teaching should be. Teaching is expected to be dialogue between teacher and student where experiences would be shared. A question that may arise here is that since teaching content is pre-selected or

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[1] Soltis, J. F. 1993. "Democracy and Teaching". In Journal of Philosophy of Education Society of Great Britain. Vol. 27 (2): 149- 150
[2] Fenstermacher, G. and Soltis, J. 1986. Approaches to Teaching. New York: Teachers College Press.

determined as organised activities, how will dialogue not derail the intention of what is to be taught and learnt since the learners opinion may differ from the focus of the teachers? Here is one agrees with the school of thought that believed that teachers should be moderator or facilitator in the classroom rather than custodian of knowledge as assumed. So, teacher should direct the discussion in the class and make sure that experiences shared fall within the purview of the chosen content and the aim of doing the teaching.

Moreover, scholars have further examined teaching analytically; the effort of Ryle and Smith as accounted by Kneller[1] would be re-appraised. Ryle sees teaching as didactic discourse. Didactic is a distinct discourse that is designed to teach people something; especially a moral lesson. Based on this meaning, teaching is distinguished among various kinds of discourse that contain speaking and writing. These kinds range from casual, unstudied conversation to deliberate one, weighed utterances and so on. However, Ryle concludes that the best form of discourse is one that is designed to instruct. In other words, the act of teaching is kind of instruction that is designed to elicit certain knowledge which has direct influence on the learner. Didactic teaching is more than talking, instructing or drilling because it is independent of the deliverer, he recipient and the occasion of the delivery[2]. Teaching therefore, is not just any act of unguided speech or writing which may not generate any knowledge. Can it be said that certain instruction that turns out to be negative due to the attached value by the society be categorised as teaching and learning? For example behaviour that emerge as a result of mis-education such as the activities of a group known as 'boko haram' in Nigeria and similar others. One will say that they are not teaching because the doctrine deviates from what is worthwhile which an important aspect of good teaching. Good teaching according to Kneller[3] is for teacher to teach students the habits and norms of critical thought and behaviour. Besides, teaching is expected to project worthwhile ideas that will reflect on learners later in life. Such negative attitude does not take place in the school and its content was not subjected for analysis.

Furthermore, among the qualities of effective teaching is that it can be achieved for generation yet unborn and its content can be handled and delivered by any other professional teacher. This is not applicable to any other forms of discourse. So, teaching stands a distinct kind of activities that appear in form of handing down instruction to people with the aim of changing learners' attitude and disposition. In another line of analysis, Othanel Smith sees teaching as action to induce learning. That is actions that are designed to elicit learning from

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[1] Kneller, G. F. 1966. Logic and Language of Education.p.80- 84
[2] Op cit. p.104
[3] Ibid p.106

target audience; especially students in formal education system. He contends that teaching connotes three major things as peculiar characteristics of any action termed to be teaching. These three features are: a body of knowledge or system of ideas, the profession of teaching, and a way of making things known to others. In other words, act of teaching should have a body of knowledge known as content, a teacher i.e. one who is professionally trained to handle the deliverance of the content, and finally channelisation of the knowledge should be in conformity with good or appropriate methodology. Smith placed much emphasis on methodology as the sine qua non of teaching. Teaching methodology is the professional skill that distinguishes a teacher from any other person who imparts knowledge.

Analytically, Smith pointed out shortcomings in various definitions given to teaching. First, teaching as 'imparting knowledge', by implication this means that teacher delivers knowledge to the student. This definition accrued all-knowing capability to teacher while learners are assumed to have empty knowledge, whereas idealists contend that no human being has empty knowledge vessel. Therefore, teaching should be activities that assist learners to realise its potentialities endowed him by providence. So, teacher does not determine how learners learn and therefore knowledge cannot be delivered to anyone. Secondly, he faulted teaching's definition as 'presenting problems for analysis or solution' which implies that teaching is to engage learners in the process of dealing with problems. Smith says that neither of these definitions is adequate. He therefore submits that teaching as a system of actions designed to induce learning. Put differently, teaching is a system of actions varied in form and content and content, directed towards learners[1]. In summary therefore, teaching can generate its meaning through answering questions such as what is to be taught, why and how? Appropriate answers to these questions will give clear meaning of what teaching should be.

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[1] Ibid p. 227

## 3.3 Summary

The chapter tries to explain the methodology to be used in this research work as well as the kind of methodology that is conventionally used in the field of philosophy of education. Various opinions of the leading scholars in the field as regards research methodology were also projected. It is established that four major modes of doing research were associated with philosophy of education: speculative, prescriptive, analytic and historical methods. The discussion then shifted to the analysis of a major concept in the study which is teaching, where philosophical analysis of the concept is given to clarify mis-conception about the concept of teaching. The analysis therefore made it clear that not all activity in the name of giving knowledge could be regarded as teaching. Although, many of these activities share structure with teaching but yet, they are not teaching due to certain peculiar features of teaching that are missing in them. Teaching should take place in a formal setting called school; there should be content to be taught and a competent professional to handle the teaching (teacher) with an appropriate methodology so as to have the aim of teaching achieved. Scholars agree that the act of teaching should meet up with the condition of continuity, intentional, practicalisation and concept formation. Any activity that is devoid of these criteria is not teaching and cannot be regard as teaching. It could be other things like training, drilling, and indoctrination because they share close affinity with teaching, especially in the areas of instruction, direction and so on. Therefore, based on the guidelines of the leading scholars in the field of philosophy of education, the researcher has chosen to adopt the six chapter format. This is to include identification of problem of study, that is, lack of critical thinking pedagogy among Nigerian teachers as rooted in the background to the study as what arouse the intellectual concern or curiosity for the study. Review of related literature which also serves as the theoretical basis for the study includes the previous effort on similar study as well as the contribution of great scholars on the problem of study. Discussion of methodology used is to come after the establishment of theoretical background. Also, the study is to lucidly discuss the major ideas (concepts/variables) central to the study. In conformity with the tradition of philosophical writing, the study is to present a chapter where issues will be raised, argument and counter arguments and follow by enunciating the study's contribution to knowledge by building on the previous chapters to present intellectual position or the thesis of the study. Finally the summary of the study will conclude the research work.

# CHAPTER FOUR

## ANALYSIS OF BASIC CONCEPTS

In this chapter, basic concepts central to the theme of the study are going to be analysed philosophically. Thus, this section shall discuss concepts such as pedagogy, critical thinking, critical pedagogy, critical thinking pedagogy, and Nigerian Educational practice as concepts in educational practice.

### 4.1 The Concept of Pedagogy

In the tradition of philosophical research, it is imperative to have an in-depth understanding of a concept. This will prevent ambiguity, distortion and finally provides better understanding of the concept under inquiry. Thus, this aspect is set to provide a philosophical examination of the concept; pedagogy. Definitions given to the concept are marred by certain mis conceptions of what pedagogy is not. For instance, pedagogy is associated with teacher's type or attitude, hence pedagogy is equated with autocratic, democratic and laissez- fair attitudes of teachers. At times, Pedagogy is viewed as mode of instruction, whereas pedagogy is more robust in out- look than these narrow perspectives.

Many definitions given to the concept appear to be grossly inadequate because majority of them do not exclusively describe the concept. For example, Merriam Webster Dictionary defines pedagogy as the art, science or profession of teaching. A critical examination of this definition suggests that pedagogy does not have a categorical meaning whether it is an art or science of teaching or the actual job of teaching. This definition is therefore misleading or confusing because it does not say in clear language what pedagogy is or is not. Similarly, Oxford Advanced Learners' Dictionary defines pedagogy as the study of teaching methods. In other words, pedagogy is described as an area of education where different methods of teaching are studied. This definition also only describes a part and not the whole of the concept. Pedagogy is more robust and advanced than different teaching methods.

Pedagogy connotes the process and personality of the pedagogue, that is, the teacher who actually engage in the act of imparting knowledge to learners especially in designated places called school. All the highlighted definitions of the concept could be referred to as general or layman definitions and obviously they showed enormous inadequacy and could best be described as craft which McDonald[1] and Marland[2] described as an approach

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[1] J. P. McDonald. *Teaching: Making Sense of an Uncertain Craft*. New-York: Teachers College Press. 1992
[2] M, Marland. *The Craft of the Classroom*. Oxford: Heinemann Educational. 1993.

suggested by writers who recognise uncertainty and the limit of predictability. Nevertheless, scholars have made efforts through available literature to describe pedagogy from different viewpoints toward providing broad understanding of the concept.

Thus, pedagogy is described etymologically from French and Latin adaptations of the Greek of a boy and a leader. Similarly, it can be historically described as man having oversight of a child, or an attendant leading a boy to school[1]. It is evident from these descriptions that they are inadequate, especially in the modern world where gender sensitivity is being promoted. Both male and female are involved in child's education, so it may be sentimental to attribute a child's education to the effort of the male folk only. More so, the roles of a pedagogue which is equivalent to modern day teacher may appear too narrow or too elementary and trivial if what he does is just to lead the child to school. Marton and Booth[2] defined pedagogy as a discipline which covers the consideration of the development of health and bodily fitness, social and moral well-fare, ethics and aesthetics, as well as to facilitate society's and the individual's pedagogic aims. This scholarly definition aptly captures the true meaning of pedagogy and expectation of the pedagogue as it encapsulates both character formation and intellectual development of a learner.

## 4.2 Pedagogy Re-defined

It is apparent from the foregoing that the concept of pedagogy is beclouded with various degrees of mis-conceptions and inadequacies in its definitions. It can therefore be established that the concept can be defined at four different levels namely: layman, etymological, historical and professional definitions. In a layman's definition, pedagogy is method of teaching. Etymologically, it derives its meaning from Greek adaptations 'paidagogos' meaning a boy escorted to school by a slave. Similarly, pedagogy is said to have historical meaning of one who leads a boy to school which has been in use since around fourteenth century.

Professionals however, see pedagogy's scope as extended beyond the limited coverage identified by the other forms of definitions highlighted. Pedagogy under teaching and learning processes is premised on any conscious activity by one person designed to enhance learning in another. Perhaps, this affinity shared with the act of teaching, informed the layman definition of the concept. Nevertheless, pedagogy is attributed to both managerial

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[1] C, Watkins and P, Mortimore. Pedagogy: What Do We Know? In Mortimore, P. (ed). *Understanding Pedagogy and Its Impact on Learning*.1999
[2] F.Marton and S. Booth. *Learning and Awareness*. Mahwah NJ: Lawrence Erlbaum

and organisational aspect of teacher's classroom work[1]. This implies that pedagogy is not only measured by teachers' teaching ability but also his managerial and organisational skills. In other words, a pedagogue orchestrates a complex situation, oversees numerous events and manages multiple activities. Pedagogy should move teaching from high volume to high value production.

Pedagogy can also be described as meta-teaching as aptly defined by Beaudin and Hadden[2] as thinking about instruction and how to make improvements while in the midst of teaching and learning. In other words, meta-cognitive teaching is thinking about teaching and planning for instruction in order to meet the specific needs of students. In support of this description, Hartman[3] gives characteristics of meta-cognitive teaching as teachers' awareness of the sources and characteristics of students' misconceptions and subsequent monitoring and evaluating of the extent to which important misconceptions have changed in productive ways.

### 4.3 Pedagogy and Teaching Juxtaposed

Teaching and pedagogy are two key concepts in education. The two concepts are often being confused in their usage and application, especially in the processes of teaching and learning. Teaching appears to be more household word in use than pedagogy; although the two concepts have certain similarities and differences which are to be examined here. However, the popularity of the word teaching over pedagogy can be attributed to the findings of scholars that the word is mostly used in the European countries only while teaching is mostly used in other English speaking countries[4]. Nevertheless, the observation is less important to this study because the use of particular word can be a matter of choice. More technical juxtaposition need to be done to establish a clear cut difference and similarities between the two concepts.

In the last chapter, efforts have been made to make explicit the concept of teaching as one of the major concepts to discuss in the study. Therefore, further expositions through instances and features would be employed to point out the areas of similarities and differences of the two key concepts. Thus, in the views of Riu and Flockton[5], pedagogy and teaching seem to be synonymous concepts. Pedagogy is said to originate from Greek's *paidagogos*- slave who took a child to and from school while teacher is a person who, or a

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[1] R. J. Arends. *Learning to Teach*. New-York: McGraw-Hill. 1994

[2] L, Beaudin and C, Hadden. *Technology and Pedagogy: Building Techno-Pedagogical Skills in Pre-service Teachers*. 2005.

[3] H. J. Hartman (Ed). Meta-cognition in Learning and Instruction: Theory, Research and Practice. In Neuropsychology and Cognition. Vol. 19. Dordrecht Kluwer Academic Publisher. 2001.

[4] Watkins & Mortimore. 1999

[5] N. T. Riu and L. Flockton, Teaching / Pedagogy. The New Zealand Curriculum. 2009.

thing which teaches or instructs, especially a person employed to teach in a school. In this comparison, it should be noted that the concept of teacher is more comprehensive in meaning than pedagogue its synonym. This is so in the sense that sometimes the teacher may not be human being whereas pedagogue cannot be any other thing than human being. Hence, an aspect of difference appears.

Nevertheless, these definitions showed that both concepts shared certain affinity. It is logically deduced that pedagogy begets pedagogue while teaching begets teacher. Thus, pedagogy and teaching are professions while pedagogue and teacher are the practitioners of the profession performing same function of providing education or guidance to learners. In the scholars' further submission, pedagogue is described as a schoolmaster, a teacher especially a strict, dogmatic, pedantic one or a man especially a slave who took a child to and from school and supervises the child's behaviour generally while teacher shows the way, directs conduct and guides. From these allusions, the teacher seems to be more technical in meaning and nobler than pedagogue particularly in educational context. Teacher and Pedagogue as explained here is in tandem with Tsui's[1] classification of expert and non-expert teachers. A major difference between an expert and experienced non-expert like pedagogue described lies in the way they complete the task or the kinds of task they take on and how they take it.

Similarly, effective pedagogy is described as methodologically data driven process while quality teaching is a set of unconditional and observable qualities, characteristics and actions[2]. Hence, it can be concluded that pedagogy is more of theory while teaching is the practice. In other words, pedagogy provides the theoretical bases for teaching practice which practically execute the theoretical knowledge of teaching and learning. This is further substantiated by the scholars' assertion that pedagogy is technical, rational and managerial while teaching is intuitive, expressive and creative.

As a rider to pedagogy as theoretical framework for teaching, its manifestation occurs in the expert and non-expert dichotomy. Pedagogical knowledge puts an expert teacher at an advantage over a non-expert teacher because practicalising theoretical knowledge and theorising practical knowledge are intertwined; and interaction between them is firmly rooted in practice. Therefore, exploration and experimentation with the new ideas which pedagogy provides, to bring about change in learning is very important and sustaining commitment to

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[1] A. B. M. Tsui, "Distinctive Qualities of Expert Teachers". In Teachers and Teaching: Theory and Practice. Vol. 15 (4): 421- 439. August, 2009

[2] A. B. M. Tsui p23

teaching. And such exploration and experimentation is the principle of problematising the unproblematic for greater achievement in teaching and learning. The capability of problematising the unproblematic is crucial to the development of expert teachers[1]

## 4.4 Plato's Concept of Critical Thinking (Dialectics)

It can be extrapolated from Plato's idea of dialectics that critical thinking means provision of incontrovertible knowledge through intellectual commitment. In other words, dialectics method of inquiry in line with Plato's idea can be equated with critical thinking as obtained in act of doing philosophy. Critical thinking is said to have four major aspects: abstract thinking- thinking past what your senses tell you, creative thinking- thinking out of box (innovation), systematic thinking- organising thoughts into logical steps and communicative thinking- being precise in giving ideas to others[2]. It should be noted that dialectics is purely philosophical means of philosophising because Plato affirmed this in *The Republic* that a dialectician is actually a true philosopher. However, this can be imported into education process to enhance its effectiveness especially in the area of employing effective pedagogy in teaching and learning processes. What is dialectics? Why dialectics in philosophy of education? In philosophy generally, dialectic is viewed as the main business of a philosopher. In other words, what philosophers do is dialectics. The root of dialectics can be found in the dialogues of Socrates (470- 399BC) as compiled in the works of Plato (428 – 348BC). This act was demonstrated fully in all Plato's book as systematic way of discussion or dialogue which aims at clarifying issues or change belief and in the long run build new knowledge. It is otherwise known as dialectical thinking which is equivalent to critical thinking. Hegel[3] described dialectics as a philosophical instrument of triad nature: thesis, antithesis and synthesis. In other parlance, it is referred to as construction, deconstruction and re-construction. Thus, dialectics in philosophy of education can be described as dialogue in educational setting (school) that ensue between teacher and learner towards arriving at a new knowledge or an idea. Based on this explanation, can we say that dialectics is equivalent to teaching pedagogy? Is even dialectic relevant to education at all if viewed as philosophical tool? These and some other related questions shall be answered in the analysis and exposition of the concept of dialectics using Plato's model in the course of the study. However, in brief response, one can say that dialectics as philosophical tool is adopted as an applied discipline

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[1] A. B. M. Tsui p234

[2] J. Adebayo. *The Role of Critical Thinking in Problem Solving in Organisations*. Ibadan: Odua Investment Company Ltd. 2013'

[3] K. R. Popper. What is Dialectic?@www.vordenker.de.2004. Accesses 9th May, 2017

into education to foster effective teaching and learning, especially in the area of deploying sufficient critical thinking skill into the educational curriculum.

Nevertheless, the ancient Greek word '*dialegesthai,*' primarily means, 'to discuss', 'to converse' or simply to 'talk with or to'. It was noted that the word could signify something like 'to converse with oneself' or 'to deliberate'[1]. Dialegesthia, before Plato carried at least two meanings: one sense had to do with interpersonal discussion, the other with deliberation or critical thinking for which conversing with oneself was used metaphorically[2]. Dialectics is used to describe the activity of asking and answering questions dealing in some way with the manner in which things exist as evident in virtually all Plato's dialogue.

Dialectics is conceived as playing an important role in the obtaining philosophical knowledge. In other words, dialectics is a philosophical skill of detecting truth. It at times has to do with philosophical task of defining and distinguishing ideas and correctly employing this knowledge of unchanging truth so that our thoughts and words have fixed and stable meanings. In *Permenides,* dialectics is the term used when referring to sort of philosophical conversation that was above ordinary conversation, small talk, gossip and the word games employed by Sophists and rhetoricians. It is also a kind of sarcastical language used against the sophist in the ancient Greek. Dialectics according to Socrates was a method, a procedure in the early stages of the development of philosophy and has peculiar feature. It takes note of both words and deeds. This means that dialectic goes beyond talking, it includes activity of observation. Also, it does not attempt to address topics which the conversers are not knowledgeable about, or further topics which cannot possibly be known by human-beings. This characteristic shows that dialectic has implication for teaching and learning which expected teaching and learning to begin from known to unknown or from concrete to abstract and so on.

Dialectics as a philosophical tool is a form of critical mind skill. Popper[3] defines dialectics in modern sense as a theory which maintains that something (human thought) develops in a way characterised by what is called dialectics triad: thesis, anti-thesis and synthesis. In other words, processes of dialectics involve three significant levels as itemised above. Thus, dialectics is described as certain developments, or certain historical process occurring in certain typical way. It is evident that dialectics triad serves as synopsis of

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[1] E. Janssens, 'The Concept of Dialectic in the Ancient World'. Henry W. J (Trans.). In Philosophy and Rhetoric 1(3) 1968:174

[2] P. Narod, *Dialectic in Plato's Permenides*. Unpublished Thesis of George Mason University. Fairfax: VA.2013; P2

[3] K. Popper. What is Dialectic? 2004 @www.vordenker.de. Accessed 9/5/2017 p2

academic or intellectual endeavour. As earlier established by Kneller, one of the major reasons of schooling is to learn how to think and able to solve problems, that is to think critically and creatively. However, for this mission to be accomplished, learners should be trained along a principle that will put them on the right track of critical thinking and solving problems. Therefore, dialectics triad cycle provides a template for both teacher and learners to actualise the objectives of education. In that sense, dialectics is an intellectual expedition which can be adapted to pedagogy to assist learners attain selflessness in term of solving even life problems independently as one of the skill expected to be acquired through formal education.

**Dialectics triadic cycle**
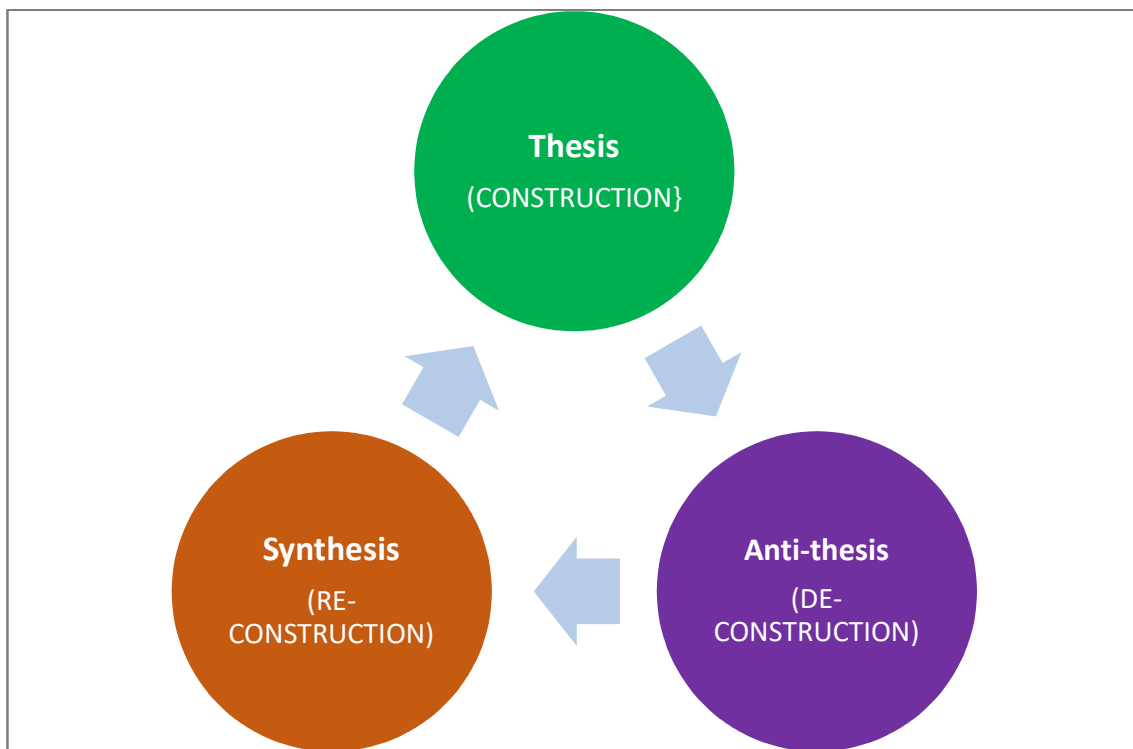


The diagram above shows that dialectics triad has three cycles' levels. There will be a theory or an idea which is referred to as 'thesis'. Such thesis will often produce opposition because it will definitely have its weaknesses. The opposing idea or movement is called 'anti-thesis' because it is directed against the thesis. The struggle between the thesis and anti-thesis goes on until some solutions are reached which in a certain sense goes beyond both thesis and anti-thesis by recognising their respective values and by trying to preserve the merits and to avoid the limitations of both. This solution which is the third step is called 'synthesis'. Once, the synthesis is attained, it automatically becomes another first step of dialectics triad and will do so until the particular synthesis turns out to be one sided or otherwise unsatisfactory.

In that case, opposition will be aroused again, which means a synthesis can be described as a new thesis which will produce a new anti-thesis. The dialectics triad continues in this manner on any issue or idea or theory until the whole exercise is recycled again.

The implication of this on education is that intellectual activity is on a continuum. It does not have a definite end. Besides, this is a strong argument in support of research that it will forever be continuous and that all knowledge or development is tentative. As long as people engage in critical thinking, it will always lead to creativity that will eventually bring about development. In brief, dialectics is of philosophical origin as a method of examining and discussing opposing ideas in order to establish the truth. It can also be described as discussion and reasoning by dialogue as a method of intellectual investigation. Singh[1] defines dialogue as a process of conversation, argumentation and mutual supplementation of ideas between two individuals such as teacher and learner. Dialogue evolves a method in which the encounter with other thinkers is essential. This is opposed to a monologue which can formulate nothing but a dogma. This is the reason why teacher-centred pedagogy is referred to as avenue to indoctrinate learners rather than educate them whereas Bamisaiye[2] contends that an indoctrinated person acts on the platform of belief while educated person acts on the platform of reason. In other words, reasoning as can be found under the use of dialogue can appropriate education and knowledge than a system where learners are treated as mere storage for knowledge.

## 4.5 Paulo Freire's Critical Pedagogy (Conscienticizao)

Pedagogy is generally believed to be a means of putting across knowledge or ideas from someone who is educated to do so (teacher), to one who is ready and willing to learn (learners). This is in line with the submission of Wartkins and Mortimore[3] that pedagogy is a conscious activity by one person designed to enhance learning in another. However, discharging these duties has various methodologies that have been developed over time to do the job. Among these is the most popular and commonly used pedagogy: lecture method which Freire branded as banking concept of education. It should be noted *ab-initio* that the activities of teaching and learning culminate into what is tagged education. Having condemned the conventional method of teaching, Freire recommends what is described as a radical approach to the system of imparting knowledge and this is known as critical

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[1] R. P. Singh. "From Dialogue to Dialectic: Socrates, Kant, Hegel and Marx". In Indian Philosophical Quarterly xxvii (3) July 2000
[2] O. Ayodele-Bamisaiye. What is Man, That We Should Educate Him? Ibadan: University of Ibadan Press. 2009
[3] Watkins & Mortimore. Pedagogy: What Do We Know? P17

pedagogy. This pedagogy is to involve problem solving where the content of the curriculum could be used as real life experience to be discussed between the teacher and students. This is similar to the dialectics' approach of Plato where critical dialogue is expected between the teacher and learners.

Nevertheless, as reflected in this study, critical thinking pedagogy connotes two separate concepts: critical thinking and critical pedagogy. Critical thinking is believed to be a skill which every individual is expected to possess while critical pedagogy should be a process through which the skill could be acquired. Emphasis on change and collective action to achieve it, moves the central concerns of critical pedagogy rather far from those of critical thinking since it is assumed that the skill is not an inborn trait, rather it is learnt. But this should be done with appropriate pedagogy that can contribute to the actualisation of the skill.

Plato made use of dialectic to project idealist principle to elicit being critical in learners through critical dialogue that involved his interlocutors with the major character Socrates. In other words, Idealist opined that process of education is recollections: knowledge already deposited in an individual. Therefore, dialectics was used as an instrument to elicit the critical tendency already deposited in man by nature through the use of systematic structured questions which is known today as Socratic questioning. Similarly, Freire advocated for the use of critical pedagogy to achieve same goal of developing critical quality of an individual.

It can however be drawn that both critical thinking and critical pedagogy set to achieve the same goal of helping to make people more critical in thought and action. Thus progressive minded educators can help to free learners so as to see the world as it is and to act accordingly. Critical education has the potential to increase freedom and enlarge the scope of human possibilities in terms of development[1]. If being critical is this important, what then is it to be critical? To be critical could mean to be more conscious and always ready to move beyond the given. In another sense, to be critical means to be more discerning in recognising faulty argument, hasty generalisation, and assertions lacking evidences, truth claims based on unreliable authority, ambiguous or obscure concepts and so forth[2]. In his comment, Richard Paul described lack of critical thinking as a basic problem of irrational, illogical and unexamined living[3]. It is understood from this submissions insufficient criticality in human

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[1]Burbules and Rupert. 1999. Critical Thinking and Critical Pedagogy: Relations, Differences and Limits. In Thomas S.P. & Lynn (Eds). New York: Routledge.
[2] ibid
[3] Richard, P. 1990:66

beings can affect so many things and it is capable of impeding development because any individual who is not critical will fall prey of all the above itemised errors in thinking and actions. Richard then concludes that the act of explicating, analysing, and assessing these arguments and logic is essential to leading an examined life[1]. Perhaps, this is a practical response to the Socrates' proposition that unexamined life is not worthy of living. In other words, to live an examined life is for one to be critical in thinking.

In a similar vein, Siegel[2] states that critical thinking aims at self-sufficiency, and a sufficient person is a liberated person who is free from the unwarranted and undesirable control of unjustified beliefs. This assertion is germane to the central theme of this study as supported by National Policy on Education statement that Nigeria aims at building a self-reliant nation through education. However, it should be noted that the kind of individual found in a nation determines what the nation becomes. In other words, a nation dominated by self-sufficient individuals can achieve a self-reliant nation. Therefore, one feels that for education to achieve this stated goal, there is need for special pedagogy in the educational practice which can make an individual self-sufficient and have liberated mind that can think towards development.

Nevertheless, critical pedagogy as postulated by Freire is more related to politics than education because the primary pre-occupation of critical pedagogy is with social injustice and how to transform inequitable, undemocratic or oppressive institutions and social relations. In other words, critical pedagogy is more a mechanism to fight colonialism and oppression rather than being an educational theory. But the principle being a philosophical proposition has tendency to be applied into any spectrum of human endeavour. So it can also be adapted as an educational theory. This allusion can be further understood with the study of how learners are being taught in Nigerian schools, where the teacher appears as unchallenged authority with over-all knowledge. Put differently, it is a kind of master slave relationship which one thinks came from the relationship between the colonialist and the colonised. The modes of educational operation before and after independence testify to this assertion. Therefore, it can be assumed that the social and political relationship between the imperialist and their host transferred into educational institutions and then became the norm.

Besides, Freire himself seemed to have an answer to this objection when he declared that to be illiterate was not only to lack the skills of reading and writing; it was to feel

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[1] ibid
[2] Siegel. 1988:58

powerless and dependent in a much more general way as well[1]. Hence, Freire's approach to fostering literacy combined the development of basic skills in reading and writing, development of sense of confidence and efficacy; especially in collective thought and action; and desire to change not only oneself but the circumstances of one's social group. However, the pedagogy he thought would promote all these qualities is dialogue or dialectics. So, in critical pedagogy, a critical person is one who is empowered to seek justice, emancipation and also move to change injustice. Freire contends that dialogue is cultural action for freedom and its pre-eminent purpose is to conscientise the people while conscienticao by Freire means critical consciousness or awareness whereas critical consciousness is brought about not through intellectual effort alone but through praxis, that is, through authentic union of action and reflection[2].

As a means of teaching critical consciousness following the theory, Freire designed a teaching method called '*decodification*'. This is a kind of reading which is an attempt to read the world with the same kind of perspicacity with which one is learning to read words. In a succinct language, *decodification* represents images that both illustrate the words or phrases that students are learning to read, and represent problematic social conditions that become the collective focus of dialogue and eventually the object of strategies for potential change. So, for practicability of this pedagogy, educational institutions is important and can be described as an avenue through which the society educates the younger generation and expose them to skill that can guarantee continuity and advancement. Therefore, it is believed that if critical pedagogy can be used as part of the teaching methods in schools, there is tendency that the nation's educational objectives can be achieved.

## 4.6 Pedagogy and Critical Thinking Pedagogy

In general understanding, the concept of pedagogy is simply described as the study of teaching methods. It is also defined as the activities of educating or instructing or teaching: activities that impart knowledge or skills. In other words, it is the principles and methods of instruction. In teacher education programmes, it is known as teaching methods. This implies that pedagogy is an instrument used by the teacher in facilitating their work in the process of teaching and learning. Critical thinking pedagogy on the other hand is also an instrument of teaching but which is based on certain philosophical theory to enhance the use of any chosen

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[1] Freire, P. 1970b
[2] Freire, P. 1970:48

pedagogy by the pedagogue. Walkins and Mortimore[1] define pedagogy as any conscious activity by one person designed to enhance learning in another. Similarly, Bernstein[2] defines pedagogy as a sustained process whereby somebody acquires new forms or develops existing forms of conduct, knowledge, practice and criteria from somebody or something deemed to be appropriate provider and evaluator

Nevertheless, there are about seven formal methods of teaching traditionally which are expected to be learnt by prospective teachers in the course of teacher education. This was important because methods are tools for effective deployment of knowledge to learners. Besides, this special skill is what differentiates teaching and teacher from any other discipline. In other words, teachers' professionalism is determined by the display of adequate and effective teaching methods. It is the professional strength of a pedagogue (teacher). These formal methods of teaching which hitherto shall be referred to as traditional methods include Lecture Method, Class-Teaching, Project, Dramatic, Socratic, Problem and Dalton or Assignment Methods.

These pedagogies are referred to as traditional due to their long time existence and relevance in the field of educational theory and practice. They are also traditional because virtually all of them have been swallowed up by the most popular and widely used method among them: lecture method. The hegemonic status of lecture method over others could be as a result of its simplicity in usage and less demanding unlike others. However, the seven types of formal teaching methodologies could be grouped into two major classes: Teacher- Centred Pedagogy and Student-Centred Pedagogy. Then, what is Teacher-Centred and Student-Centred pedagogies? What are their major differences? What is the justification for Critical Thinking Pedagogy in educational theory and practice?

Teacher-Centred approach focuses on the teacher as the expert in transmitting knowledge to the students who are novices[3]. In contrast, the Student-Centred approach places the student at the centre of the learning processes and it is generally intended to provide students with autonomy to actively seek out and construct meaning from information and previous experience[4]. Teacher-centred pedagogy requires little or no involvement of learners in the teaching and learning processes. Such characteristic of insufficient involvement of

[1] C. Watkins and P. Mortimore. Pedagogy: What Do We Know? In Mortimore, P. (Ed.) *Understanding Pedagogy and Its Impact on Learning*. London: Paul Chapman Publishing. 1999. P3
[2] B. Bernstein. *Pedagogy, Symbolic Control and Identity*. Lanham MD: Rowman and Littlefield. 2000. P78
[3] T. S. A. Tengkukasim. Teaching Paradigms: Analysis of Traditional and Student-Centred Approaches. In Journal of Usuluddin. Vol. 40: 199. 2014.
[4] [4] T. S. A. Tengkukasim p199

learners in what they are taught is responsible for the 'closed ended'[1] name given to teacher-centred pedagogy. The idea of a pedagogy giving autonomy to students is in tandem with the policy of the Nigerian National Policy on Education where it emphasises building of free and democratic society; a just and egalitarian society, united, strong and self-reliant nation[2]. All these agenda are to be achieved through education. It then follows that only a pedagogy that allows democratic process in education such as critical thinking pedagogy that relies on the use of active dialogue between teacher and learners can assist in this direction.

Moreover, genuine dialogue builds confidence in learners and makes them have sense of belonging which can engender high level independence. And student who undergo this kind of education are those who can actually understand the idea of just and egalitarian society not those who have been indoctrinated to believe that teachers or authority is always right and unchallengeable. Apart from the above, traditional teaching pedagogy was also too content-centred and was overtly focused on rote-learning, regurgitation and examinations. This does not allow teachers to assess other domains of learning especially the affective domain in terms of ethics and moral which is part of what knowledge of philosophy of education puts into consideration and easily observable in the process of active dialogue between teacher and learners. Rather in traditional pedagogy, efforts have been deployed to students' outcome only or result in examination.

Critical Thinking Pedagogy as an integral part of learner-centred pedagogy jointly has the following characteristics:

> An appropriate mix of learning strategies to ensure mastery of basic competencies and promotion of holistic development.
>
> Allowances for individual differences in learning styles to boost performance, and
>
> A classroom atmosphere that is compatible with different teaching learning strategies[3].

It is evident from these features that the pedagogy can be adapted into any of the existing teaching methodology while none will lose its status-quo but rather will enhance it to deliver. The common feature of students and teachers in a student-centred learning environment is that students will learn to exercise courage in making decisions and assuming responsibility. Also, students will learn to process and manipulate information and teachers

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[1] A. Makosha & M. Ongwae. A 14Days Teaching Methodology Course: Trainers Handbook. Kenya: German Development Service
[2] NPE 2013:1
[3] Tengku kasim p201.

will now play the role of 'a guide by the side' rather than traditional role of 'sage on the stage'. In other words, for effective pedagogy, teacher should play a role of a coordinator or facilitator of learning, rather than a big boss or an authority who knows all. Besides, the paradigm allows learner to be part of decision in what becomes the outcome of their knowledge. This can be implemented by allowing learners' relevant contributions in the class to form part of their note in the class.

## 4.7 Pedagogy in Nigerian Educational Practice

Pedagogical skill is an important and integral part of teaching practice in any educational system. However, how is the concept of teaching understood among people and what is the position of pedagogical skill which is popularly known as teaching methodology? In a layman or common sense description; teaching and teacher appear simple to describe as simply an act of imparting knowledge to a learner or a child. Thus, various categories of people are referred to as a teacher. In other words, anyone who engages in any form of teaching either with the required skills or not is been addressed as teacher. Even one who indoctrinates is sometimes referred to as teacher especially when the teaching becomes questionable. For instance, when a group of people display what they learnt from their leaders; this can be noticed in the behaviour of religious people or adherent of certain ideology which are quite different from what is generally believed to be appropriate. Therefore, people as parents, priests, religious leaders among others are regarded as teachers most of the time.

In reality, the activities of all these categories of people identified could be taken for teaching because of certain characteristics which their activities shared with actual act of teaching such as content, learner and the teacher. But it should be noted that the people's activities will not be accepted as act of teaching by the practitioners due to the fact that the activity is devoid of an important ingredient which dialectic pedagogy emphasised. So, any activity that will be accepted as act of teaching should involve dialogue between the teacher and learners with other component like methodology and so on.

Besides, even among the practitioners who are believed to possess all the criteria that qualify them as teachers, certain qualities or attitude have been identified by Babarinde[1] as what differentiate 'a teacher' from 'a cheat'. These qualities include the use of integrative model of teaching against blame model. He submits that teaching has no meaning unless it leads to learning. Therefore, a teacher is one who is committed to learning unlike a cheat who

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[1] K. Babarinde. The Teacher and the Cheat; Emerging Trends in Teaching and Learning. Ibadan: CETL University of Ibadan. 2016

only sees curriculum as a list of items to be covered while on podium. A cheat has also abridged all methods of teaching and learning into lecture method whereas good teaching supports appropriate learning activities such as critical thinking pedagogy can offer through its dialogical model. It follows from the analysis of teaching that any activity in form of teaching which does not take cognizance of the vital activities cannot be regarded as a teaching activity. Therefore, not just anybody can be addressed as a teacher if such has not been professionally trained to have the qualities of what makes a good teacher.

Nevertheless, teaching is professionally described by Scheffler[1] as an activity involving exercising the mental power, engaging in receiving and processing incoming ideas especially to develop the power of perception, discrimination, retention, combination, abstraction and representation. This professional definition of teaching aptly summarises what the critical thinking pedagogy as a teaching paradigm connotes. It is by nature a pedagogical model where all the mentioned qualities could be accommodated. Qualities of effective teaching such as exercising mental power, engaging in receiving and processing of ideas (dialogue) as well as ability or opportunity to discriminate, retain and combine ideas in the midst of plethora of knowledge and information.

Similarly, Langer as quoted by Kanu[2] holds that teaching is not an opportunity for teacher to impress his statements, beliefs and opinions on the learners' mind for them to reproduce on cue. Rather, teachers' opinions or words should be instrumental to the learners' own search for reality or further self-development. Furthermore, in the words of Lowman[3]; thinking is the process of learning, thinking is developed through dialogue and dialogue is a philosophical pedagogy. Thus, critical thinking pedagogy which emanates from critical philosophies of both Plato and Freire can foster good and effective teaching because of its elastic nature of having potentiality to accommodate other forms of teaching pedagogies. In other words, critical thinking pedagogy can be understood as a form of integrative teaching model used by the teacher and which differentiates 'a teacher' from 'a cheat'.

Nevertheless, by practice in Nigeria teaching, it is obvious that prevalent pedagogy in use is teacher-centred or lecture method which Kanu described as rote-learning especially at the lower level of education i.e. primary and post primary levels of education. In his words, Kanu says that our pedagogical models and practices in the primary schools steeped in rote-

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[1] I. Scheffler. *Reason and Teaching*. New York: Routledge and Kegan Paul. 1973

[2] J.I. Kanu. "Doing Philosophy: An Imperative for Developing the Nigerian Child's Critical/ Creative Thinking". In Nigerian Journal of Educational Philosophy. Vol. 23 (1): 67- 78. June 2012.

[3] J. Lowman. *Mastering the Techniques of Teaching*. India: Presentice Hall. 1987

learning are barriers to children's philosophising in the classroom. Similarly, Nduka described traditional method  as authoritative model in tertiary institutions where lecturers just dictate facts and figures to students as note taking and expected to write and give back same on request. This is a process tagged as 'sage on the stage'. Perhaps, this style stemmed from human nature that always wants to dominate fellow human beings. Or probably from the inherited form of education from the colonialist of master- slave relationship which is the major points of attack of educational process by Freire's critical pedagogy. It is thus apparent that such process is counter- productive and cannot promote development. In fact, it is a strait-jacket form of education which does not give room for self-development and innovation that can aid development of self-reliant nation through education.

# CHAPTER FIVE

## CRITICAL THINKING PEDAGOGY PARADIGM

Critical thinking pedagogy as mentioned at the introductory part of this study is in the area of epistemology; an aspect of philosophy that deals in theory of knowledge. Similarly, as a contribution of philosophy of education to educational theory and practice, critical thinking pedagogy is set to provide an alternative pedagogy in teaching and learning which could adequately address some of the National Policy statements on education. Education is expected to be used as a channel to achieve some aspects of national goals in Nigeria. This cannot be possible without an adequate pedagogy to be used by the teachers who are major stakeholders in education; to impart the policy statements in form of knowledge to learners and leaders of tomorrow. Critical thinking pedagogy can then be described as an epistemological contribution of philosophy of education in the area of pedagogy and effective learning.

In other words, critical thinking pedagogy is a method of teaching derived from the major instrument of philosophy and philosophy of education which is reasoning. Thus, critical thinking pedagogy is a proposed mode of teaching which can enhance the performance of teachers towards achieving the aim of educational goals and at the same time to ascertain productivity with the end product. As could be discerned, critical thinking pedagogy will fortify learners with certain observable skills such as self-autonomy. This can be in decision making, showing originality of ideas and high responsibility. Besides, an educational system that allows critical thinking pedagogy is likely to produce more civil and democratic youth because democratic process would have become an habit due to its usage every now and then in the classroom through dialogue or dialectics.

Also, critical thinking pedagogy can be a point of departure from the traditional pedagogy or teacher-centred pedagogy that has been accused of so many anomalies. In other words, critical thinking pedagogy constitutes a paradigm shift from the conventional teaching methodology. This will be in line with the theory of constructivism which has been embraced globally as the most appropriate theory of teaching, where learners are allowed to be part of what they learn and how they learn it. Moreover, one of the reasons for philosophy of education to re-examine the theory and practice of a given system of education to determine whether the right thing is being done. Thus, a critical examination of objectives of education at all levels shows that there is less deployment of critical thinking tendency through the kind of pedagogies employed in  teaching at all levels  to impart knowledge. And this has been a

major factor in the quality of learners produced by the system of education in place. It should be noted that education should prepare an individual for life and not just to write and pass examination. Therefore, a pedagogy which can put learners on the track of solving life problems through being creative would be more appropriate than one that only prepares them for examination purpose.

## 5.1 The Praxis of Critical Thinking Pedagogy

Teaching entails many aspects especially in formal education. Thus, teachers' work begins from lesson plan, curriculum (content), and teaching methodology (pedagogy). A systematic organisation of the foregoing is what determines a teacher's professionalism trait from non- professional teachers. Therefore, for a teacher to have undergone or study a course in philosophy of education, such must have prepared the teacher for the critical challenges in teaching and learning processes. Lesson plan is not restricted to what is rhetorically done in both primary and secondary levels of education, where teachers write lesson plans in form of note to be submitted to certain authority for vetting before being used in the class. Lesson plan is any pre-task preparation which can even involve critical thinking on how a lesson is to be delivered for the sake of effectiveness. Similarly, curriculum content should be logically selected to depict well synergised lesson plan.

Furthermore, as part of lesson plan, is the choice of appropriate pedagogy that will assist in adequate delivery of the content. It then follows that teaching is serious intellectual discharge which cannot be handled by just any untrained person against the wrong notion that anybody can teach. Besides, the high level critical pre-lesson plan buttresses the saying that 'He who failed to plan has actually planned to fail'. Moreover, ability to think critically is very germane to success in the contemporary world. So, there has been persistent call on educational institutions especially the tertiary institutions to address inadequacy in the critical thinking skills of fresh graduates. The missing gap has been responsible for un-employability of many university graduates in Nigeria because virtually all employers wish to employ someone who is creative and self-dependent. Thus, critical thinking is a developmental skill that cannot be taught simply by the usual traditional methods which do not encourage critical thinking as learners are always subjected to the whims and caprices of the teacher or the authority. Instead, critical thinking must be nurtured through an effective pedagogy such as critical thinking pedagogy being proposed, which is to be woven into content matter already in place as an enhanced pedagogy.

Therefore, as part of critical thinking pedagogy, examination question should challenge learners to think beyond regurgitation of facts to set of questions that are designed to test the following: a position on an issue, consider and reason from premise, proceed in an orderly manner appropriate to the situation, propose conclusion seems plausible and simple, challenge questions, analyse arguments, and judge the credibility of a source of information and formulate criteria for judging possible answer. Nevertheless, the study is set to call attention to the revised Bloom's taxonomy of educational objectives with embedded component of critical thinking skills which are primary guidelines for assessment and development of sound and effective test items for assessing critical thinking skills, since the major means of assessing learners is through examination. Therefore, the tables below give summary of how examination questions could be formulated using Bloom's Revised Cognitive Taxonomy Scale as well as American Philosophical Association model of question development to reflect core critical thinking skills.

It is however necessary to have an understanding of what Bloom Taxonomy is all about. What is solo taxonomy? Is there any relationship between the two ideas and critical thinking pedagogy? Answer to these questions and other related ones will provide a better understanding of the concepts and their relevance to the study. Bloom taxonomy of learning was propounded in 1956 by Benjamin Bloom as classification of educational objectives. The objectives were directed to three areas of learners' educational behaviours or what is expected of a learner to display after exposure to learning experiences. These were captured under three domains of education namely: cognitive, affective and psychomotor development[1]. These domains have sub-concepts to be developed in the learner or what can be called indicators for the achievement of each domains of learning. Thus, cognitive domain has the following as its subsidiaries: knowledge or information, comprehension or understanding, application, analysis, synthesis and evaluation.

These specifications are in line with what Plato described as levels of cognition which had been discussed earlier in this study. By explanation, the six specifications by Bloom imply that learners should have knowledge of something or information about something which gets to them most of the time through teacher and other learning materials. The information received must be well comprehended before it could be applied to further concepts. It at this point that critical thinking comes in between information and understanding. Dialectics as philosophical instrument comes into play here, where both

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[1]Oladele, J. O. 1989. *Fundamentals of psychological foundations of education.* Lagos: Johns-Lad Publishers Ltd. P.89.

teacher and learner engage in dialogue for better understanding of an idea. The dialectics stage covers the level of synthesis, where learner shows ability to internalize the idea of creating advancement in knowledge through creativity. The final stage is demonstration of the other five preceding levels because a vivid understanding of an idea gives room for right judgement or evaluation both in learner's academic task and personal life engagements.

Also, Bloom's taxonomy has affective domain where teaching and learning processes are expected to address learners' values, attitude and appreciation. Here, teaching and learning is expected to build value concepts in learner. So, to achieve this lofty educational goal, teacher should be well equipped with appropriate pedagogy such as critical thinking pedagogy where such qualitative idea can be instilled into learners. Lastly, Bloom taxonomy emphasise psychomotor domain which is expected to teach manipulative skill to learners. A teacher with the knowledge about critical thinking pedagogy will carefully select adequate terms and terminology that will engender psychomotor behaviours in learner as proposed by Bloom.

Nevertheless, there are modifications to Bloom's taxonomy on cognitive domain by one of his former students and it is called revised Bloom taxonomy of learning under a new name: solo taxonomy. Solo taxonomy is an acronym for Structured Observed Learning Outcome. It is a model of learning like Bloom taxonomy, but with concentration on cognitive domain of learning. It describes levels of increasing complexity in learner's understanding of a task. Thus, there are levels of no idea, one idea, loose idea, connected ideas, and extended ideas. These five levels are discussed under five broad sub-heading as designed by Biggs and Collis[1] as:

1. Pre- structural: the learner does not understand the lesson and uses a much too simple means of going about it. The learner is unsure about the lesson or subject.

2. Uni-structural: the learner's response only focuses on one relevant aspect. The learner has only a basic concept about the subject.

3. Multi-structural: the learner's response focuses on several relevant aspects but they are treated independently. The learner has several concepts about the subject but they are disconnected. Assessment of this level is primarily quantitative.

4. Rational: the different aspects have become integrated into a coherent whole. The learner has mastered the complexity of the subject by being able to join all the

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[1]Biggs, J. B. and Collis, K. F. 1982. Evaluating the Quality of Learning- the SOLO Taxonomy 1st Edition. New York: Academic Press

parts together. This level is what is normally meant by an adequate understanding of a subject.

5. Extended abstract: the previous integrated whole may be conceptualized at a higher level of abstraction and generalized to a new topic or area. The learner is now able to create new ideas based on her mastery of the subject.

Solo model is a quintessential of effective pedagogy such as critical thinking pedagogy because it shows teachers how the learners are progressing, and the learner as well could determine its level of progress in learning. More importantly, teacher needs not throw away what they do already in term of pedagogy, instead, the mode of teaching could be adjusted through the model of solo taxonomy's five levels of understanding. The model has an in built evaluative measure for both the learner and the teacher. It can assist to plan the level of learning required for a topic or subject, it can assess the extent to which each learner has reached the level of learning set and it can also be used to determine the next step for learning. All these qualities make the revised Bloom taxonomy essential part of the critical thinking pedagogy as it touches various aspects of teaching and learning. Therefore, the taxonomy is used to identify areas where critical thinking pedagogy is expected to intervene in teaching and learning processes. The charts below shows the intervention of the model in examination questions the reflect critical thinking as well as teacher- learners dialogue that can promote creativity and problem solving in form of classroom interactions.

Table 1:  Development of Examination Questions using Revised Bloom's Cognitive Taxonomy Scale[1]

| Revised Bloom's cognitive level | Description | Learning objective | Sample question frames |
|---|---|---|---|
| Remember | lower order questions that require the students to recognise or recall information | Students will be able to:<br>• recall<br>• recognise<br>• name<br>• list | Define …?<br>What is…?<br>When did…?<br>Can you list the three…? |
| Understand | lower order question that requires the students to demonstrate sufficient understanding to organize and arrange materials mentally | Students will be able to:<br>• interpret<br>• exemplify<br>• classify<br>• explain | Will you state or interpret in your own words…?<br>What is meant by…?<br>What is the main idea of…?<br>Can you explain what is happening…? |
| Apply | lower order question that asks the students to apply previously learned information to reach as answer | Students will be able to:<br>• execute<br>• implement<br>• transfer<br>• utilize | What examples can you find to…?<br>Can you make use of the theory to…?<br>How would you apply what you learnt to develop…?<br>How would you show your understanding of…? |

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[1] B.S. Bloom, M. D. Engelhart, E. J. Furst, W. H. & D. R. Krathwohl. Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook 1: Cognitive e domain. New York: David Mckay Company. 1956.

| | | | |
|---|---|---|---|
| Analyse | higher order questions that require the students to think critically and indepth | Students will be able to:<br>• discriminate<br>• break down<br>• distinguish<br>• categorise | Can you make a distinction between…?<br>What is the relationship between…?<br>Why do you think…?<br>What are the parts/features of…? |
| Evaluate | higher order question that requires the students to judge the merit of an idea, a solution to a problem, or an aesthetic work | Students will be able to:<br>• rate<br>• assess<br>• criticise<br>• judge | How would you rate the …?<br>Why was it better than…?<br>What is your opinion of …?<br>Do you agree with the actions/outcome…? |
| Create | higher order question that asks the students to perform original and creative thinking | Students will be able to:<br>• generate<br>• produce<br>• design<br>• formulate | What would happen if…?<br>Can you propose an alternative…?<br>Can you elaborate on the reason…?<br>How would you improve…? |

Table 2: Developments of Examination Questions using the Core Critical Thinking Skills as specified by America Philosophical Association[1]

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[1] American Philosophical Association. Critical Thinking: A Statement of expert consensus for purpose of educational assessment and instruction "the Delphic report" committee on Pre-College Philosophy. Millbac, CA: The Calfonia Academic Press. 1990.

| Critical Thinking Skills | Description | Formulated learning objective | Questions for invoking critical thinking skills |
|---|---|---|---|
| Interpretation | "to comprehend and express the meaning or significance of a wide variety or experiences, situations, data, events, judgments, conventions, beliefs, rules, procedures, or others" | Students will be able to:<br>• categorise<br>• decode significance<br>• clarify meaning | • What does this mean?<br>• What's happening?<br>• How should we understand that (what he or she just said)?<br>• What is the best way to characterise/ categorise/classify this? |
| Analysis | "to identify the intended and actual inferential relationship among statements, questions, concepts, descriptions, or other forms of representation intended to express beliefs, judgments, experiences, reasons, information, or options". | Students will be able to:<br>• examine ideas<br>• identify arguments<br>• identify reasons and claims | • Please tell us again your reasons for making that claim<br>• What is your conclusion/what is it that you are claiming?<br>• Why do you think that?<br>• What are the arguments pro and con? |
| Inferences | "to identify and secure elements needed to draw reasonable conclusions; to form conjectures and hypotheses; to consider relevant information and to reduce the consequence drawing from data, | Students will be able to:<br>• query evidence<br>• conjective alternative<br>• draw conclusions using inductive or | • Given what we know so far, what conclusions can we draw?<br>• What does this evidence imply?<br>• If we abandoned/accepted that assumption, how would things change? |

| | statement, principles, evidence, judgments, beliefs, options, concepts, description, questions, or other forms of representation. | deductive reasoning | • What are the consequences of doing things that way? |
|---|---|---|---|
| Evaluation | "to assess the credibility of statements or other representations that are accounts or descriptions or a person's perception, experience, situation, judgment, belief, or opinion; and to assess the logical strength of the actual or intended inferential relationships among statements, descriptions, questions, or other form of representation" | Students will be able to:<br>• assess credibility of claims<br>• assess quality of arguments that were made using inductive or deductive reasoning | • How credible is that claim?<br>• Why do we think we can trust what this person claims?<br>• How strong are those arguments?<br>• How confident can we be in our conclusion given what we now know? |
| Explanation | "to state and to justify that reasoning in terms of the evidential, conceptual, methodological, ortheriological, and contextual considerations upon which one's results were based; and to present | Students will be able to:<br>• state results<br>• justify procedures<br>• present arguments | • What were the specific findings/results of the investigation?<br>• Please tell us how you conducted those analyses?<br>• Please take us through your reasoning one |

| | | | |
|---|---|---|---|
| | one's reasoning in the form of cogent arguments" | | more time?<br>• How would you explain why this particular decision was made? |
| Self-Regulations | "self-consciously to monitor one's cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis and evaluation to one's own inferential judgments with a view towards questioning, confirming, validating, or correcting either one's reasoning or one's results" | Students will be able to:<br>• self-monitor<br>• self-correct | • Our position on this issue is still too vague; can we be more precise?<br>• How good was our methodology, and how well did we follow it?<br>• Is there a way we reconcile these two apparently conflicting conclusions?<br>• Ok, before we comment, what are we missing? |

**5.2 Critical Thinking Pedagogy in Classroom Situation**

We have discussed the application of critical thinking pedagogy into question formulation which is an integral part of teaching duties of a pedagogue; teachers apart from the judges are the most analytic personnel. Therefore, the knowledge of accurate means of analysing individual is very important to teachers. Hence, the discussion moves to how the model could be applied in a classroom situation which is the core exercise or activities of teaching and learning. The study has established that critical thinking pedagogy is gleaned from philosophical models of dialectics and critical consciousness. And the central feature of the models is dialogue which is under utilised in the traditional pedagogy. In other words, the major tool of critical thinking pedagogy is an effective dialogue between the teacher and the learner. Under the pedagogy, the teacher sees the learner as the user of information and not receivers of information as found in the traditional pedagogy described as banking system of education.

The teacher as coordinator or facilitator of learning would lead a discussion in the classroom through a well pre-arranged condition of learning with the content of given curriculum logically selected. Teacher who makes use of critical thinking pedagogy needs perfect examples and problems that will lead the learner to an appropriate experience. It then behooves on the teacher to choose adequate examples and activities that will tease out the required knowledge or ideas in the learner. This is to say that teacher who chooses to use critical thinking pedagogy must be well prepared with vivid examples that are current and interesting because if examples are inadequate, learning the abstractive subjects is difficult. This is in line with Dewey's[1] postulation that the control of quality learning is through the choice of activities and determination of structure.

It is self-evident that with the use of critical thinking pedagogy, four basic skills of formal education can be achieved easily. The skills are communicative skill, problem-solving skill, critical thinking skill and creative skill respectively. The skills are acquired as dialogue occurs between the teacher and learners where the former pays attention to the manifestations of any of the skills and correct or enforce them at the same time. Nevertheless, the pedagogy as a philosophical teaching instrument has reflection as part of a whole. As a follow up, the teacher is expected to reflect on the whole exercise because reflection guides the instructional planning. He needs to ask himself some assessment questions after teaching because man is his own best and

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[1] J. Dewey. *Experience and Education*. New York: Macmillan. 1938.

worst critics. Therefore, questions such as did a particular direction cause confusion? Did a sequence fall apart? Didn't an example work? And so on, to ascertain whether the aim of the lesson has been achieved. Answers that are provided against these types of questions determine the verdict to be passed on the lesson. This is known as internal criticism in philosophy of education. If a teacher is conscious of this he is likely to deliver good lesson because self-assessment would have been done on his teaching before external criticism. This is exactly what is described as reflective teaching as proposed by John Dewey.

Similarly, as the key words expounded in the charts above could be a guide to developing critical thinking skill in setting examination questions; same method could be used in the process of real teaching where both the teacher and learner engage in dialogue such as explicated under dialectic strand. As critical thinking pedagogy is concerned, construction of authentic test items for assessing students' acquisition of critical thinking skill and in measuring progress towards the specified behavioural objectives designed for the purpose of developing critical thinking skills, the following fundamental key words should be incorporated into the classroom questioning.

**Describing** - by clearly defining what you are talking about, what specifically was involved where it took place and under what circumstances.

**Reflecting** - reconsidering a topic by taking into account new information or a new experience or considering other viewpoints.

**Analysing** - examining and then explaining how something is, including comparing and contrasting different elements and understanding relationship to your subject/topic.

**Critiquing** - identifying and examining weaknesses in arguments as well as acknowledging its strengths. It's important to think of critiquing as 'neutral' and not negative.

**Reasoning** - using methods such as cause and effect to demonstrate logical thinking, as well as presenting evidence that either refutes or proves an argument.

**Evaluating** - can include commenting on the degree of success and failure of something, or the value of something is firmly assessed based on teachers' ability to provide answers to some fundament questions.

As the model is presented with the likely directive on the utilisation of the philosophical teaching pedagogy, the question that needs be asked is that is the pedagogical model actually a novel in education theory and practice? The examination of this question forms the subject matter of the next sub-topic.

**5.3 Is Critical Thinking Pedagogy truly a Pedagogical Paradigm Shift?**

A question such as this is the hallmark of philosophy and philosophy of education. As mentioned earlier, such is called internal criticism which a philosopher needs to do as a self-reflection upon his postulation or theory. An activity of self-reflection is what makes philosophy an enduring and intellectual venture which is relevant at all times in life of human being. If one says yes, does it mean that there had not been teaching pedagogy that do exactly the same thing? Put differently, in what ways is critical thinking pedagogy different from other known pedagogy?

Critical thinking or critical consciousness is not brought about through intellectual effort alone but through praxis such as critical thinking pedagogy will offer. Among other form of pedagogies in use especially the traditional teacher-centred is based only on intellectual effort and thus makes critical thinking less effective in the process of teaching and learning. A critical examination of the pedagogy shows the structure  as having same face look with the existing pedagogies and thus making it look as a mere replication of a system in different outlook. Therefore, its use may not be popular among the targeted population: the teachers. This may form likely excuses to be put forward as inability to identify any significant difference between the new method of teaching and the existing ones. But it should be noted that no two methods are the same but similar and it takes caution for prospective end user to be able to differentiate the modes and manner of operation for optimum value.

Another important question as regards the critical thinking pedagogy is that at what level of education could it be appropriate for use? After all, other forms of pedagogies have a clear cut demarcation of area of operation. For instance, play-way method is meant for pre- primary and primary level of education. In other words, what group of learner is the target of the proposed pedagogy? In brief, critical thinking pedagogy is applicable to all levels of education which is in tandem with the provision of National Policy on Education that emphasises the need for critical thinking and creativity as a cardinal point of educational system in Nigeria.

Discussion under the subheading has tried to put possible criticism against critical thinking pedagogy as a paradigm shift in teaching and learning pedagogies. The highlighted

issues and more others could be raised against the pedagogy being a work that has direct link with human existence and therefore should not be left to chance. It has to be perfect so as to achieve the desired goal of being a teaching theory worthy to be practiced in institutions of learning. So, the next point of excursus will try to corroborate some of the defences provided above to the issues against critical thinking pedagogy.

## 5.4 In Defense of Critical Thinking Pedagogy

It should be understood *ab-initio* that any human activity that is projected by philosophy and philosophy of education should be one that will improve the standard of man. This is to say that the proposed pedagogy has ontological value as a proposition with man as the central focus. In other words, any proponent of philosophy of education should be one that is capable of advancing the course of education wherever it is practiced. In the same vein, Critical thinking pedagogy as a philosophical contribution towards act of teaching and learning is to advance the course of knowledge expansion and imparting critical thinking skill in learners with ease. Therefore, some of the issues raised against critical thinking pedagogy in the last subheading will be reacted to in a bid to clarify issues.

As for whether critical thinking pedagogy is a true paradigm shift or not, a synthesis from combination of different ideas is surely a new development. Thus, critical thinking pedagogy is gleaned from two philosophical ideas of Plato and Freire. That is, both philosophical idea of dialectics and critical consciousness have been fused to form a teaching and learning pedagogy in line with Nigerian national education objectives. The pedagogy is significant in the sense that it actually depicts the reciprocative nature of ideal teaching and learning situation through its main component: dialogue. The process allows the teacher to see learners as users of information rather than receivers of education[1]. This is against a system that sees learners as receptacles to be filled with information. Learners are not mere object but partners in the process of knowledge acquisition.

The method makes the teacher a double participant because he is also a learner and teacher simultaneously; under the pedagogy, he is referred to as facilitator of knowledge rather than giver of knowledge. This is an aspect that makes critical thinking pedagogy an active democratic process in the classroom. Learners' opinion is respected by the teacher and thus

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[1] L. G. Snyder & M. K. Snyder. "Teaching Critical Thinking and Problem Solving Skills". In the Delta Pi Epsilon Journal Vol. 1 (2), Spring/Summer, 2008.

sociological principle of teacher-student influence and student-teacher influence become practical and real. As generally believed that learners are the reflections of their teacher and educational system, the knowledge acquired through this process determines the nature of learners' behaviour or disposition even outside the classroom. Concerning the level at which critical thinking pedagogy could be used, it can be used at any level of education, depending on the understanding and dexterity of the teacher using the pedagogy. What a teacher should be conscious of is the choice of appropriate learning activities and examples for instruction adequate for any particular level of education. This adaptation skill will put a teacher at the level of professional.

## 5.5 Critical Thinking Pedagogy: A Synthesised Pedagogy

As a pedagogical paradigm shift, critical thinking pedagogy is a teaching method originating from philosophical point of view. All research in philosophy of education contains an aspect of each component of philosophy and philosophy of education. In other words, critical thinking pedagogy has an ontological value of developing man, while the epistemological aspect of the proposed pedagogy shows how man can be developed through the means of imparting knowledge by the teacher.

Hence, the pedagogy is extrapolated from two philosophical ideas. There is dialectical principle of Plato as well as Freire's critical pedagogy gleaned together to form critical thinking pedagogy. It should also be noted that in the contemporary world, the art of teaching and learning has advanced from teacher-centred pedagogy to student-centred pedagogy. It is in line with this vital change in teaching practice that critical thinking pedagogy is offered as an additional or alternative pedagogy for teaching and learning support of the student-centred pedagogy. However, it is obvious from the analysis of the proposed pedagogy that the shift from teacher-centred to learner-centred pedagogies does not just occur, but the latter is highly comprehensive to have the process of traditional pedagogy inclusive. In Freire's idea, the alluded traditional pedagogy is likened to a banking concept of education where little dialogue exists between the teacher and learners. Thus, critical thinking pedagogy is to promote the idea of problem-solving through the teaching mechanism as proposed by Paulo Freire. Therefore, using critical thinking pedagogy will cure educational pedagogy from the narration sickness attributed to traditional pedagogy or teacher-centred pedagogy.

Similarly, in the practical demonstration of the efficiency and effectiveness of dialectic method to nurture the drawn seed of knowledge, Socrates gave due respect to Meno's slave boy through mutual dialogue between them despite the boy's status. This is inherent quality of the critical thinking pedagogy unlike the banking system of education where learners are assumed not having any idea of their own, therefore being treated like an object. It is believed that critical thinking pedagogy will make learners 'being for their selves' and not 'being for others'. For this to happen, both teacher and learner will jointly become responsible for knowledge development and this shows through the process of implementing critical thinking pedagogy. In other words, critical thinking pedagogy has respect for humanity and human dignity which are core values of National Policy on education in Nigeria. This further prompts discourse on the ethical dimension of the proposed pedagogy.

## 5.6 Ethical Dimension of Critical Thinking Pedagogy

As a study in philosophy of education, there is need to mention the ethical implication of critical thinking pedagogy. Perhaps, lack of adequate ethical information of some other teaching pedagogies outside philosophy of education was responsible for ineffectiveness of those pedagogies to enhance critical thinking in teaching and learning. Whereas, an ethical educational practitioner should be an ideal role model whose conducts and habits teach more than his pronouncements.

Ethics studies choices and actions that affect human welfare. In other words, ethics comes into play in any human activities in which teaching and learning are not excluded. It is required in all human endeavour for sustainable development. That is, if an achievement has no ethical value, it short lived. This suggests that no matter how lofty an idea is, if not accompanied with ethical dispositions, it may not yield expected result. Thus, critical thinking pedagogy has an ethical dimension to make it a form of effective pedagogy. Oladipo and Adedeji[1] said that ethics deals with the question of right and wrong in human behaviour. In other words, it deals with how men ought to behave and why it is wrong to behave in certain ways. Therefore, all those attitudes that have been identified as inimical to teaching and learning processes should be jettisoned by teachers who choose to use critical thinking pedagogy. The alluded negative ethical practices have been summarized in the ideas of the two philosophers used for the study.

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[1]Oladipo, O. and Adedeji, G. M. A. 2011. Philosophy, Logic and Issues in Science and Technology: An Introduction. Ibadan: Hope Publications Ltd. P.110

Paulo Freire frowned at the idea of treating learners like a dormant receptacle to be filled with anything without any form of resistance, while Plato's dialectics promotes mutual dialogue between teacher and learner. It is even preferred in dialectics for the teacher to keep its knowledge at bay. Socrates says that knowledge begins when one accepts that what he thinks he knows, he does not know anything. These are some of the ethical dimension of the pedagogue which should be against the idea of a sage on the stage or authoritarian pedagogue. Such attitudes of pedagogue are unethical and detrimental to the use of critical thinking pedagogy for meaningful development of knowledge.

Ethics in other parlance is called moral philosophy, and one feels that among the reasons why philosophy or education is mounted in the education of pre-service teachers in all higher institutions of learning is for them to be conscious of required ethical practice during actual practice. It then follows that any practice that rejects the ethical dimension may not thrive or even fail to realize its aim. Therefore, as part of the ethical dimension, any educational practitioner using critical thinking pedagogy should see self as also learner, coordinator or facilitator of knowledge and these should reflect in conduct and practice.

## 5.7 Theoretical approaches to the use of critical thinking pedagogy

There are many ways, almost endlessly ways to encourage students to discover and take command of their thinking to become critical thinker, in as much as the principle of critical thinking as can be deduced from the philosophies of Plato and Freire are concerned. These principles include mutual dialogue, appropriate questioning that engender enquiry, relaxed and conducive environment, linking curriculum contents and classroom activities to life outside classroom through solving true life problems in the classroom.

However, critical thinking skill can only develop when properly cultivated and guided through predictable stages which the pedagogy desires to offer. The theoretical stages presented here are not exclusive; it can be further expanded depending on the creative ability of the individual teacher. Nevertheless, certain assumptions are necessary as primer for prospective teachers for effectual development of critical thinking skills in learners. Thus, pedagogue should know that:

I.   There are predictable stages that every critical thinker passes through,

II.  One stage to the next is dependent upon a level of commitment on the part of an individual; it is not automatic or inborn trait in human.

III. Success in instruction is connected to the intellectual quality of student learning and that,

IV. Regression is possible in development if not habitual.

These highlighted assumptions will assist both the teacher and learners to benefit immensely from critical thinking pedagogy because both are teacher and learner under the principle. So, there are six stages or characteristics of a critical thinker which teacher needs to take cognisance of during teaching and learning processes. Understanding the stages will afford the teacher the right choice of interaction and teaching instruction that can promote critical thinking skill in learners at each stage of critical thinking development. These stages are:

1. The Unreflective thinker- lacks the ability to explicitly assess their thinking and improve it thereby. The thinker fails to recognize thinking as involving concepts, assumptions, inferences, implications, point of view and so on.

2. The Challenged thinker- becomes aware of the determining role of thinking and basic problems that come from poor thinking. At this level the thinker develops some reflexive awareness of thinking for good or ill.

3. The beginning thinker- the thinker recognizes that they have basic problems in their thinking and make attempts to better understand and improve it. They recognise and internalise standards for the assessment of thinking: clarity, accuracy, precision, relevance, logicalness and so on.

4. The practicing thinker- has a sense of the habit and practice regularly but still has limited insight into deeper levels of thought. He can critique his own plan for systematic practice.

5. The advanced thinker- actively analyses its thinking in all the significant domains of life. He regularly critique his own plan for systematic practice and improve on it.

6. The accomplished thinkers- systematically take charge of their thinking and continually monitoring, revising and rethinking strategies for continual improvement of their thinking. They are deeply internalised basic skills of thought. They are deeply committed to fair minded thinking and have a high level perfect control over their egocentric nature.

Having identified the classes of thinkers and their expectations, there is need to present the pedagogical prerequisites in form of instruction that guide the pedagogue in the effective deployment of critical thinking skill through educational practice.

**5.8 Pedagogical prerequisites for critical thinking lessons**

1. Critical thinking pedagogue should let learners realise that whenever humans reason, they have to use certain elements without which their thinking would be intellectually unintelligible.

2. It should be established that thinking is inevitably driven by the questions we seek answer and for some purpose.

3. Thinking through any problem, issue or content should take command of these intellectual structures: purpose, question, information, inferences, assumptions, concepts, point of view and implications.

4. Vocabulary for talking about thinking needs to be learned slowly and progressively based on the level of education

5. Teaching content as a mode of thinking means that all content areas are connected to organized ways of figuring things out

6. Teaching can lead discussion and emphasise what we want them to figure out. For example, we can focus instruction on key fundamental questions and make those questions explicit.

7. Teacher should assist learners to be aware of how thinking is structured or how to assess or improve it.

8. Critical pedagogue should recognize the importance of challenging, learners in a supportive way by leading class discussions about thinking that is, giving a model of thinking about thinking.

9. Classroom activities that explicitly require learners to think about their thinking should be designed where learners themselves can examine both poor and sound thinking.

10. Learners should be introduced to idea of intellectual humility, that is, the idea of becoming aware of our own ignorance.

11. Teaching should be in such a way that will allow learners know that there is need for regular practice of good thinking to become good thinkers. Sporting analogies and other skill areas can be used to convince learner

12. Learners need to know that thinking is inevitably driven by questions, and that we seek answers to questions for some purpose. For instance, to answer question, we need information and to use information, we must interpret it by making inferences.

13. Lastly, critical thinking pedagogy should be used with the curriculum content intellectually, through intellectual elements of thinking; so that learner can develop critical thinking skill along with their subjects or area of specialization.

Critical thinking pedagogue after making efforts to make learners identify the structures of thinking as highlighted above, can help learners assemble information when required, and also determines when it is appropriate to take step of interpreting the information. Learners inferences can be made explicit, when they make questionable inferences their attentions can be called and ask them what other inferences might be made. Similarly, if they make questionable assumptions, they can be helped to recognise it. The importance of their thinking as well can be emphasised through implications and consequences. The teacher can introduce diverse point of views and do it explicitly.

Given the instructional approach as guideline to the use of critical thinking pedagogy, other scholars have also worked on similar approach that can be a bit practical. This can be found in the idea of Obanya's[1] Transformational Pedagogy where he opined that education is meant to transform lives and that teachers are expected to play a lead role in bringing this about. Thus, every teacher and student encounter should lead to a situation of not being the same again. Obanya further contend that new knowledge and information might result from such encounters but may remain like mere shadows if not breathed with the real substance such as critical thinking pedagogy which he termed transformational pedagogy which should be an effective tool in the hands of critical and creative teachers. He therefore, described teacher in five different ways with their characteristics and the effect of their teaching methods on the learner. The fifth type is the one in tandem with critical thinking pedagogy and which is advised that teachers should embrace to effectively deploy critical thinking skill into teaching and learning. The five types of teaching is explained in the table below and followed by the guiding principle as suggested by the proponent of transformational pedagogy.

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[1]Obanya Pai. 2016. Education as learning a living.  P31-33

|   | Types of teaching | Characteristics | Effects on the learner |
|---|---|---|---|
| 5 | Creative | Creates responsiveness to specific teaching-learning challenges. Uses the curriculum, thinking inside the box through dialogue | Flexibility, diversity in activities and organization of class work with challenging activities leading to learning by discovery and linking classroom with the world outside |
| 4 | Interactive | Encourages student participation, but still in the box thinking bound. | More varied activities but still dull in nature, induces restlessness in children |
| 3 | Demonstrative | Allows student input but only of the say or do after me type. | Repetitive or routine activities of no interest to bright learners. |
| 2 | Didactic | Has learnt the formal pedagogical rules and follows them blindly | Short span attention |
| 1 | Dictatorial | All the knowing, stuffing the empty heads of learners, sage on stage syndrome | Encourages passivity, boredom and kills innovation or activism, lack of mutual dialogue |

In order to achieve the best type of teaching which can effectively develop the spirit of critical thinking in learners, the following were proposed for the pedagogue by Obanya as guiding principles:

1. Teacher should minimise the lecture approach to teaching;
2. Should capitalise on the knowledge/ experience/ values and attitude that learners bring to the programme
3. Practice resourcefulness by sourcing materials beyond conventional textbooks, including mobilizing learners to source materials
4. Discourage dictation in favour of discovery

5. Makes activities (mental/practical) by teacher and learner and particularly among learner the dominant teaching method

6. Accept that the learner is central and so plans and executes teaching activities with the learner in mind (reflective teaching)

7. Accept that teaching-learning situation is one in which both teacher and student are learning (teacher as both instructor and participant or facilitator of learning)

8. Accept that teaching can be considered successful only after the learner has learnt (otherwise the teacher is also a failure)

9. Realises that successful learning means a positive and lasting change in behavior, in outlook, in ways of going about life (critical thinking has to become habitual)

10. Realises that successful learning begins when the learners' capacity for continuous self-improvement has become a full ingrained habit[1].

There are many ways to encourage students to discover and take command of their thinking to become critical. Thus, the highlighted characteristics of different levels of critical thinking will afford the teacher of the right choice of interaction that can promote critical thinking from one level to the other up to the level of precision. Obayan's transformational pedagogy in conjunction with the solo taxonomy of learning provides an appropriate guide for step-by-step approaches to critical thinking pedagogy. The approach is to provide a guideline which can assist teacher to implement or use critical thinking pedagogy. Individual teacher can operate within the ambit of the suggestions given toward the practice of critical thinking pedagogy in the classroom setting. These adapted guidelines in conjunction with the solo taxonomy that has earlier been discussed in this study can enhance teachers' performance towards effectual deployment of critical thinking in teaching and learning. Besides, both structures provide templates for self-evaluation of critical thinking skill through teaching and learning, especially in schools.

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[1]Obanya Pai. 2016. Education as learning a living. P33

## CHAPTER SIX

## SUMMARY, IMPLICATIONS, CONCLUSION AND RECOMMENDATIONS

The idea of critical thinking pedagogy is conceived through an intuition on apparent ineffective deployment of critical thinking and non-critical nature of the products of Nigerian educational process despite well stated policy statement on the importance of critical thinking in the national policy on education. Sometimes, this ineffectiveness of critical thinking among graduates renders them unemployable. Upon this noted weakness, the study was set to look into how ideas of two great philosophers with educational inclination can be used to fashion a pedagogy that can help promote critical thinking through formal education system. Formal school system has been designated as the best instruction where a desirable change in the society can be entrenched. Therefore, the responsibility of teaching critical thinking skill falls on the teacher who can only achieve this through the use of appropriate pedagogy such as critical thinking laden pedagogy or method of teaching.

In the introductory aspect of the study therefore, the meaning of critical thinking is discussed and analysed. It is established that critical thinking is described by various scholars, but it is obvious that despite various definitions given, one thing is common and that is the inherent feature of critical thinking. These features are aptly captured in the definition given by Scriven and Paul[1] as "the intellectually disciplined process of actively and skillfully conceptualising, applying, synthesising and or evaluating information gathered from or generated by observation, experience, reflection, reasoning, or communication, as a guide to belief and action".

At any rate, in an attempt to apply philosophical approach to study the effective means of incorporating critical thinking skill into art of teaching and learning, the ideas of two philosophers are synthesised to produce a teaching paradigm known in this study as critical thinking pedagogy. Thus, dialectical idea of Plato and critical consciousness of Paulo Freire were used as the philosophical basis for the study. In the opinion of Hegel, dialectic is purely philosophical activity and it is even the core of philosophical inquiry. In other words, no work or thesis could be philosophical without being dialectical. It is further expounded that dialectical activity has triad structure of thesis, antithesis and synthesis.

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[1] M.Scriven, and R. Paul. *Defining Critical Thinking*. The Critical Thinking Community: Foundations for Critical thinking.2008.

It then follows that if learners could be educated along the triad structure of dialectics, it makes them better learner and critical thinkers, just as a scholar opines that critical thinking skill is important for students because it enables them to deal effectively with social, scientific and practical problems[1]. Similarly, the combined critical consciousness of Freire deals with social injustice created by the traditional pedagogy which is basically teacher-centred pedagogy. So, a means of correcting this anomaly is to use an alternative pedagogy that has in-build critical thinking as well as mutual relationship between the teacher and the student. Such pedagogy is the proposed critical thinking pedagogy.

Critical thinking pedagogy is therefore a synthesised pedagogy which can be described as a by-product of the antithesis of traditional pedagogy as the main thesis. However, the new thesis was further subjected to a recycle process of construction- deconstruction- reconstruction in line with tradition of philosophical enquiry. The benefits of critical thinking pedagogy is thereafter highlighted to justify the inherent potentials of the supposed paradigm shift in pedagogical skills for effective teaching and learning as well as method of teaching critical thinking to learners for self-actualisation and development as well as active participation in the intellectual advancement.

**6.1 Implications of the Study**

Implication of critical thinking pedagogy for teachers is that he/she needs this kind of knowledge as an enhancer to his/her productivity. In other words, an understanding of philosophical contribution to the advancement of knowledge will go a long way to assist the practitioners. Moreover, embracing the use of critical thinking pedagogy as an enhancer to any of the traditional methods will corroborate Freire's[2] submission that teaching that does not emerge from the experience of learning cannot be learned by anyone. That is to say that both concepts are inter-twine and one cannot be separated from the other if success is to be achieved.

The new pedagogical paradigm would make teachers form or embrace a new attitude. Teachers should know that to teach is to create possibilities for the construction and production of knowledge not assuming a position of one who knows it all and infallible to errors. Besides, teachers should be aware that as educators, teaching does not only entail contents delivery but also directing correct thinking. Therefore, the kind of teaching that promotes memorisation and

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[1] D. M. Shakirova. Technology for the Shaping of College Students' and Upper-grade Students' Critical Thinking. In Russian Education and Society Vol. 49 (9): 42- 52. 2007.
[2] P. Freire. *Pedagogy of Freedom: Ethics, Democracy and Civil Courage*. NY: Rowman and Littlefield Publishers. 2001: 31

regurgitation of facts should be discarded and replaced with progressive pedagogy like critical thinking pedagogy. Ekanem[1] submitted that an intellectual who memorises everything, reading for hours on end are slaves to the text, fearful of taking risk. In other words, intellectual activity should involve active thinking based on rationality.

Moreover, the use of critical thinking pedagogy has propensity of producing worthwhile and democratic beings because the process involved has respect for the knowledge of the learners. On this, Freire[2] opines that thinking correctly is the responsibility of the teacher or of the school to respect the kind of knowledge that exists among the popular classes. He further contend that respect for the autonomy and dignity of everyone is an ethical imperative and not a favour. Therefore, respecting the autonomy, dignity and identity of the students entail the development in practice, coherent attitude and virtues such that it makes no sense to talk of democracy and freedom as a teacher while one acts to the contrary by way of exhibiting the arrogance of know all syndrome - 'sage on the stage'.

Further implication is that critical thinking pedagogy has an in-built mechanism to teach from known to unknown, simple to complex and concrete to abstract. This is contained in the levels of cognition as highlighted by Plato. The four levels are illusion to belief, reasoning and finally understanding or knowledge. An extensive analysis of the level of cognition is in the early chapters of the study.

## 6.2 Recommendations

Critical thinking pedagogy should be viewed as an alternative pedagogy derived from the dialectic idea of Plato and conscientisation principles of Paulo Freire. As evident in the study, the proposed teaching pedagogy may not be totally new but rather an enhancer to whatever pedagogy chosen by the teacher in the course of teaching and learning. It is therefore recommended for teachers at all levels of education as a paradigm shift in pedagogical skills that could develop more active learners who have acquired the skills of problem-solving, independent thinking and autonomous learning through the process of teaching and learning in a formal school setting.

Teachers ought to be exposed to the study of the philosophy of the curriculum, such an exposure might not produce a new revolution in educational theory and practice but it might

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[1] F. Ekanem, T. F. Ekanem and E. I. Archibong. Socratic Dialectics and the Banking Concept of Education: a Comparative Paradigm. In Zimbabwe International Journal of Open & Distance Learning. Vol. 1 (2): 76- 83. 2011.
[2] P. Freire. 2001: 59

assist in developing changed habits of thinking as teacher in the classroom. The premise that critical thinking is to knowing as listening is to hearing implies that critical thinking is learned skill that must be developed, practiced and continually integrated into curriculum to engage students in active learning. Therefore, focused attention needs to be placed on the application of content, the process of learning and methods of assessment through an appropriate pedagogy that can make these possible. As Olufowobi[1] suggested, among pedagogies that can enable intellectual development, the critical thinking pedagogy seems to be the appropriate missing link between intellectual growth and knowledge impartation.

There is also need for more teachers' versatility in terms of being acquainted with varieties of pedagogies, so that they can also blend to the changing world. In other words, teachers are expected to possess a full repertoire of pedagogic options in order to create high achieving environments for the maximum number of diverse learners, so that teaching can move from high volume to high value production.

**6.3 Conclusion**

The root to all success is healthy thinking, thus thinking is relevant and useful in all human spectrum of life. This ranges from personal and interpersonal relationships, business and particularly advancement in education. Thinking undoubtedly has both intrinsic and extrinsic value and therefore should be given proper attention, especially in the process of education which is the yardstick for human successful existence. Critical thinking could be branded in different names such as problem-solving, creativity, decision making skill, hermeneutics and so on. What is germane is that doing anything better requires effective thinking. That is coming up with more imaginative ideas, facing complicated problems and finding new ways to solve them, becoming aware of hidden possibilities and then taking rational decisions.

However, the skill of critical thinking is not inborn gift of special few. It is not esoteric for the genius alone. Critical thinking pedagogy as a link between theory and practice is to put up a means of acquiring critical thinking through teaching and learning processes. In the words of Burger and Starbird[2]; extraordinary people are just ordinary people who are thinking differently. Therefore, to be able to think critically, one need to be acquainted with the basic elements of the

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[1] O. O. Olufowobi. Reconstructing Nigerian Education in the Context of Dewey's Philosophy of Education as Growth and African Indigenous Education. An Unpublished PhD. Thesis in the Dept. of Teacher Education. University of Ibadan.

[2] E. B. Burger and M. Starbird. *The Five Elements of Effective Thinking*. Oxford: Princeton University Press

skill which is summarised as understands deeply, raise questions, follow the flow of ideas and change attitude.

Understanding entails going for deep meaning and making it rock solid. In other words, deep work on simple, basic ideas helps to build true virtuosity. Understanding deeply means mastering the fundamental principle, ideas and methods that can then create a solid foundation upon which one can build further knowledge. Nevertheless, the proposed critical thinking pedagogy does not in any way suggest that teachers should jettison the teaching pedagogy they are trained with; rather the main focus should be to help the learners build a learning strategy that would make them problem solvers and critical thinkers towards becoming independent and self-reliant individuals. A self-reliant individual has potential for being creative and thus contribute immensely to the national development.

## 6.4 Suggestion for further study

Critical thinking pedagogy can be developed and integrated as substantive teaching pedagogy going by its potentials. So, other researchers can take this up as responsibility to develop the theory into step-by-step processes using the theoretical framework provided by the study, especially in teaching science oriented and other humanity courses at different levels of education to harvest a crop of students who can actually think beyond box and contribute to national development.

Nevertheless, it is necessary to make suggestions to the following educational stakeholders: curriculum developers, teachers, governmental agencies, non-governmental agencies and Internet and Communication Technology (ICT) experts on the need for critical thinking skills and ways of imparting it through teaching and learning activities. It should be noted that the price is always very heavy when people develop a collective hostility to philosophy and critical thinking due to lack of sufficient knowledge about its potential strength in both human and environmental development.

Therefore, it should be understood that innovation and science and technology are features of modernity which emanate from critical and reflective thinking. Thus, curriculum developers should strive to include critical thinking pedagogy as a means of educational instruction in the area of content development and evaluation of curriculum designs. Similarly, teachers who are to implement the curriculum should be made familiar with various teaching

innovation as a result of research. This could reach them through in-service training, organised seminars and re-training programmes for both prospective and service teachers.

Government agencies, especially those in-charges of education such as ministries of educations, can assist on learners' education through proper monitoring of the teaching and learning activities in schools to ascertain that teachers make use of appropriate pedagogies like critical thinking pedagogy, to promote development through educational processes. In the same token, non-governmental agencies that are interested in the development of human and environment can assist through sponsor to expose both teachers and learners to critical thinking pedagogy.

Also, as Internet and Communication Technology (ICT) has been observed as the major force in the 21st century education programmes, there is need for incorporation of critical thinking skill which ICT experts should embrace and fuse into the millennium educational goals. This should focus more on interpersonal relationship that exist through the social media and other internet outlook

**References**

Adewole, A. 1987. Self- Reliance as an Educational Objective in Depressed Economy. Ibadan: *Philosophy of Education Association of Nigeria*.

Akinboye, J. O. 2016. *Educational Innovation and Enterpreneural Skills Learning*. Ibadan: CYFO Behaviour Services Ltd.

Akinpelu, J. A. 2005. *Essays in Philosophy and Education*. Ibadan: Stirling-Horden Publishers.

Alexander, S. 1983. *Dialectical Materialism*. Moscow: Progress Publishers.

American Philosophical Association. 1990. Critical Thinking: A Statement of Expert Consensus for Purpose of Educational Assessment and Instruction "*the Delphic Report*" *Committee on Pre-College Philosophy*. Millbac, CA: The Calfornia Academic Press.

Anonymous. 2010. What is Critical Pedagogy? Retrieved December 19, 2014 from *www.21st century schools*

Arends, R.I. 1994. *Learning to Teach*. New York: McGraw-Hill

Ashiru, D. 2014. Decolonizing the Curricular: The Education system and the Imperatives of Development in Nigeria. *ASUU Education Summit*, October, 2014

Ayer, A. J. 1971. *Language, Truth and Logic*. England: Penguin Books Ltd.

Ayodele-Bamisaiye, O. 2009. *What is Man, That We Should Educate Him?* Ibadan: University of Ibadan Press.

Babarinde, K. 2016. *The Teacher and the Cheat; Emerging Trends in Teaching and Learning*. Ibadan: Centre for Excellence in Teaching and Learning. University of Ibadan.

Babarinde, S. A. 2006. The Link between Everyday Reasoning, Scientific Reasoning, Scientific Research and Theory. Olayinka, A. I., Taiwo, V. O., Raji, A., Farai, I. P. Eds. *Methodology of Basic and Applied Research*. Ibadan: The Postgraduate School. University of Ibadan.

Bamisaiye, R. 1990. Philosophical Research Methods in Education. *A Guide to Philosophical Research in Education.* Enoh, A. O. and Babarinde, K. Eds.Nigeria: Stirling-Horden Publishers Ltd.

Bello, A. 1952. The Battle against Ignorance. *Nigeria Citizen*, June 5,

Bello, J. Y. 1981. *Basic Principles of Teaching*. New York: John Wiley & Sons.

Bernstein, B. 2000. *Pedagogy, Symbolic Control and Identity*. Lanham MD: Rowman and Littlefield.

Bertrand, R. 1961. *History of Western Philosophy*. London: Routledge

Bruner, J. S. 1996. *Folk Pedagogy in the Culture of Education*. Cambridge MA: Harvard University Press.

Burbules, N. C. 1993. *Dialogue in Teaching: Theory and Practice.* New York: Teachers College Press.

Burbules, N. C. and Rupert, B. 1999. *Critical Thinking and Critical Pedagogy: Relations, Differences, and Limits*. Thomas, S. P. and Lynn, F. (Eds.). New York: Routledge.

Burbules, N.C. & Rupert, B. 1999. Critical Thinking and Critical Pedagogy: Relations, Differences, and Limits. Popkewitz. T.S, and Fendler L. Eds. *Theories in Education*. NY: Routledge.

Carney, J. D. & Schear, R. K. 1980. *Fundamentals of Logic*. NY: Macmillan Publishers.

Cooperstein, S. E. and Kocevar-Weidinger. 2004. Beyond Active Learning: A Constructivist Approach to Learning. In Emerald Journal Vol. 32 (2): 141- 148

Copi, I. M. 1972. *Introduction to Logic*. London: Macmillan Publishers

David, A. C. and Munson, R. 2000. *The Elements of Reasoning*. Canada: Wardsworth Publishers.

Descartes, R. *A discourse on method.* Maclean*,* I. (Trans.) 2006. New York: Oxford University Press.

Dewey, J. 1910. *How We Think*. Boston: D. C. Heath & Co.

Dewey, J. 1916. *Democracy and Education*. New York: Macmillan Company.

Dewey, J. 1938. *Experience and Education*. New York: Macmillan

Douglas, K. 2010. *Multiple Literacies and Critical Pedagogies in Revolutionary Pedagogies-Cultural Politics, Instituting Education, and the Discourse of Theory*. Peter Pericles Trifonas Ed. London: Routledge.

Elder, L. & Paul, R. 2010. *Critical Thinking Development: A Stage Theory*. Retrieved June 6, 2013 from www.criticalthinking.org

Enoh, A. O. 1996. *Main Current in Nigeria Educational Thought*. Jos: Midland Press Ltd.

------------ 2013. *The Neglect of Philosophy of Education and Spread of Nigeria's Educational Wasteland.* Nigeria: Spindrel International Company.

------------. 1995. *Invitation to Philosophy of Education*. Ibadan: Stirling-Horden Publishers.

-------------. 2009. Writing Philosophically in Education. *Nigerian Journal of Educational Philosophy.* Vol.21.1:1- 8.

Fafunwa, A.B. 1974. *History of Education in Nigeria*. Ibadan: NPS Educational Publishers Limited.

Fanon, F. 1963. *The Wretched of the Earth*. New York: Grove Press.

Fenstermacher, G. and Soltis, J. 1986. *Approaches to Teaching*. New York: Teachers College Press.

Fiscer, J. 2009. *Ethic*s. Internet Encyclopedia of Philosophy

Freire, P. 1970. *Cultural Action for Freedom*. Cambridge, MA: Harvard Educational Review

Freire, P. 1970. *Pedagogy of the Oppressed*. New York: Seabury Press.

Freire, P. 1970. *Pedagogy of the oppressed*. Ramos, M. B. (Trans.). New York: Continuum Publishing Group.

FRN. 2013. *National Policy on Education 6ᵗʰ Edition*. Nigeria: NERDC

Giesen, J. ------- *Constructivism: A Holistic Approach to Teaching and Learning*. USA: Northern Illinois University.

Glaserfeld, E. V. 1989. Constructivism in Education. Husen, T & Postlethwaite. Eds. *The International Encyclopedia of Education, Supplement* Vol.1, Oxford/ New York: Pergamon Press.

Grosseteste. 2005. Medieval Theories of Demonstration. Retrieved March 19, 2015 from *Stanford Encyclopaedia of Philosophy*.

Groux, H. 2010. what is Critical Pedagogy? Retrieved June 6, 2011 from *www.21st century schools*

Grube, G. M. A.1963. *Plato's Thought*. London: The Athlore Press.

Hartman, H. J. (Ed.). 2001. Metacognition in Learning and Instruction: Theory, Research and Practice. In *Neuropsychology and Cognition*. Vol. 19. Dordrecht: Kluwer Academic Publishers

Hibben, J. G. Trans. 1902. *Hegel's Logic: An Essay in Interpretation*. New York: Charles Scribner & Sons.

Hirst, P.H. & Peters, R. S. 1970. *The Logic of Education*. London: Routledge and Kegan Paul.

Hudson, D. W. 1977. Learning to be Rational. *Proceedings of the Philosophy of Education of Great Britain.* Vol.xi:39

Hume, D. 2005. *An Enquiry Concerning Human Understanding*. Germany: Digireads.com Publishing.

Iheanacho, A. A. 2012. *Philosophy of Education: Principle and Applications*. Ibadan: Stirling-Horden Publishers Ltd.

Janssens, E. 1968. The Concept of Dialectic in the Ancient World. In Henry, W. J. Trans.*Philosophy and Rhetoric*. Vol. 1 (3).

Kahane, H. 1968. *Logic and Philosophy*. California: Wadsworth

Kant, I. 1781. *Critique of pure reason*. Marcus, W. (Trans.) 2007. England:  Penguin Classics

Kanu, J. I. 2012. Doing Philosophy: an imperative for developing the Nigerian child's critical/ creative thinking. *Nigerian Journal of Educational Philosophy*. Vol.23 (1): 67- 78.

Kellner, D. 2000. Multiple Literacies and Critical Pedagogies in Revolutionary Pedagogies-Cultural Politics, Instituting Education, and the Discourse of Theory. Peter Pericles Trifonas. Ed. London: Routledge.

Kemerling, G. 2011. Hume: Empiricist Naturalism. Retrieved December 31, 2014 from http://www.philosophypages.com/hume'sepistemology

Kneller, G. F. 1966. *Logic and Language of Education.* New York: John Wiley & Sons Inc.

Kneller, G. F. 1971. *Introduction to the Philosophy of Education*. New York: John Wiley & Sons Inc.

Kohli, W. 2012. Critical Hermeneutics: a philosophical foundation for the empowerment of teachers*. Philosophy of Education Society of Great Britain*. London: New College.

Lawal, B. O. 1999. *Comparative Education*. Ibadan: Stirling-Horden Publishers.

Lissovoy, N. D. 2010. Decolonial pedagogy and the ethics of global. *Discourse: Studies in the Cultural Politics of Education*. Vol.31 (3) July

Lowman, J. 1987. *Mastering the techniques of teaching*. India: Presentice Hall.

Makosha, A. & Ongwae, M. 1997. *A 14days teaching methodology course: trainers' handbook*. Kenya: German Development Service.

Marland, M. 1993. *The craft of the classroom*. Oxford: Heinemann Educational

Marton, F. and Booth, S. 1997. *Learning and Awareness*. Mahwah NJ: Lawrence Erlbaum.

Max Black, 1952. *Critical Thinking: an introduction to logic and scientific method*. NJ: Printice Hall

McDonald, J. P. 1992. *Teaching: making sense of an uncertain craft*. New York: Teachers College Press.

Mclaren, P. 2010. *What is critical pedagogy*? Retrieved June 26, 2013 from www.21st century schools

Nduka, A. O. 1974. African traditional system of thought and their implication for Nigerian education. *West African Journal of Education*. Vol.xviii.2:163-164

Newman, L. 1997. Descartes' Epistemology. Retrieved March 19, 2015 from *Stanford Encyclopedia of Philosophy*

NTI. 2015. *Bachelors' degree programme manual on GST 203: Introduction to Logic and Critical Thinking*. Kaduna: Noun Publishing Dept.

O'Conor, D. J. 1957. *An introduction to the philosophy of education*. London: Routledge & Kegan Paul.

Obanya, P. 2016. Education as learning a living. *Education in Nigeria: looking beyond the 21st century- a book of reading*. Kolawole, C. O. O., Bagudo, A. A., Moronkola, O. A., Akinkuotu, Y. A., Babarinde, S. A., Ojedokun, I. M. and Meroyi, S. I. Eds. Ibadan: Department of Teacher Education, University of Ibadan.

Oladipo, O. 2008. *Thinking about philosophy: a general guide*. Ibadan: Hope Publications.

Olu-Owolabi, K. 2011. *My people perish for lack of philosophy*. Ibadan: University of Ibadan Press.

Otakpor, N. 1985. On the relationship between science and logic. *Indian Philosophical Quarterly* xxi (1)

Otakpor, N. 2000. *A preface to logic.* Benin City: Omone Books

Paul, R. 1990. *Critical Thinking: what every person needs to survive in a rapidly changing world.* Rohnert Park, CA: Center for Critical Thinking and Moral Critique.

Peters, R. S. 1965. Education as Initiation. R. D. Archambault. Ed. *Philosophical analysis and education*. London: Routledge & Kegan Paul

Peters, R.S. 1973. *Authority, Responsibility and Education*. London: George Allen and Unwin

Plato, 1955. *The Republic*. Lee, D. (Trans.) 1987. England: Penguin Classics.

Plato, 380BC. *Meno*. Jowett, B. (Trans.) Retrieved June 26, 2008 from www.philosophypages.com

Popper, K. 2004. *What is dialectic?* Retrieved May 5, 2017, from www.vordenker.de.

Riu, N. T. and Flockton, L. 2009. *Teaching/ Pedagogy*. The New Zealand Curriculum

Rodney, W. 1972. *How Europe underdeveloped Africa*. London: Bogle- L'ouverture Publications.

Russell, B. 1961. *History of Western Philosophy*. London: George Allen & Unwin Ltd.

Salami, Y. K. 2008. The political economy of Nigeria and the continuing agenda of recolonization: a challenge for critical knowledge production. Dipo, S., Alumona, V. S., and Uwasomba, C. Eds. *Olorode the People's Pedagogue*. Nigeria: Cedar Productions.

Scheffler, I. 1973. *Reason and Teaching*. New York: Routledge and Kegan Paul.

Schofield, H. 1972. *Philosophy of education: an introduction*. London: George Allen & Unwin,

Scriven, M. and Paul, R. 2007. *Defining Critical Thinking*. The Critical Thinking Community: Foundation for Critical Thinking. Retrieved January 2, 2008, from http://www.criticalthinking.org/aboutCT/define_critical_thinking

Shakirova, M. D. 2007. Technology for the shaping of college students' and upper-grade students' critical thinking. *Russian Education and Society*. Vol. 49 (9): 42- 52

Siegel, H. 1988. *Educating reason: Rationality, Critical Thinking, and Education*. New York: Routledge

Singh, R. P. 2000. From dialogue to dialectics: Socrates, Kant, Hegel and Marx. *Indian Philosophical Quarterly* xxvii (3) July

Soltis, J. F. 1993. Democracy and Teaching. *Journal of Philosophy of Education Society of Great Britain.* Vol.27 (2): 149- 158

Stevenson, L. 1974. *Seven theories of human nature*. Oxford University Press.

Tengku Kasim, T. S. A. 2014. Teaching paradigms: an analysis of traditional and student-centred approaches. *Journal of Usuluddin* Vol. 40 July- December: 199- 218.

Tsui, A. B. M. 2009. Distinctive qualities of expert teachers. *Teachers and Teaching: Theory and Practice*. Vol. 15 (4): 421- 439. August, 2009

Watkins, C. and Mortimore, P. 1999. Pedagogy: What do we know? *Understanding Pedagogy and Its Impact on Learning*. Mortimore, P. Ed. London: Paul Chapman Publishing.

Westbrook, J; Durrani, N; Brown, R; Orr, D; Pryor, J; Boddy, J; and Salvi, F. 2013. *Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries*. University of Sussex: Dept. for International Development

William, E. M. & Charlotte, R. B. 2014. David Hume. Retrieved December 31, 2014 from *Stanford Encyclopedia of Philosophy*.

Williams, H. 1995. Content and Criticism: the aims of schooling. *Journal of Philosophy of Education.* Vol. 29 (1)