

Harnessing the Pedagogy of Critical and Creative Thinking for Nation-Building

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Abstract

Although critical and creative thinking are complementary, rather than orthogonal, the results of most researches reveal more of the efforts to compare the respective benefits of each of these thinking methods, rather than focus on the combined benefits of both. In this work, adopting a synthetic, analytic and critical methodology, I set out to explore the synergy that exists between these two forms of thinking, using some instances in the history of philosophy to show how that synergy can also be deployed for nation-building. Using Nigeria, as a hypothetical case, this work argues that we can do better than we are currently doing, if the skills and values of critical and creative thinking are emphasized in our National Policy on Education, put into use by teachers, and allowed to guide our decision-making processes, in different areas of national life.

Keywords: Creative, Critical, Nation-building, Pedagogy, Thinking.

1. Introduction

Admittedly, a central goal of contemporary education is to improve the thinking skills of students, and the notions of critical thinking and of creative thinking provide the bases for this effort. Educators would like students to be better critical thinkers. This implies thinking more effectively within curricular subject areas, understanding the reasoning employed, assessing independently and appropriately, and solving problems effectively. It involves, as well, improved thinking skills in dealing with real life problems, in

assessing information and arguments in social contexts and making important life-decisions. In his work *Meditations on First Philosophy*, Rene Descartes, after an arduous search for a knowledge which he could append the title of 'indubitability,' came to understand that, of all man's activities, thinking is that which possessed an unquestionable certainty. Hence, he vehemently declared: "I am, I exist.... certainly only for as long as I am thinking."¹ For him, thought is at the very core of man. It is that which propels every activity of the human person.

Without thought, man cannot understand the universe he lives in. Without rigorous thought, he cannot conquer his environment, and if he cannot dictate what goes on in his environment, he cannot grow. Thinking is about making meaning out of something; making sense out of what hitherto, seemed irrational.² It is about observing carefully, deciphering patterns, speculating, clarifying, supporting opinions, disagreeing, argumentations, discourse, providing justifications for various positions which of course, leads to the generation of more ideas.³ Beyond the above, it is about possessing a given logical pattern, and from the said logic, working out implications. Without prejudice to all the other functions of the mind, two essential and indispensable roles which it performs are creativity and criticality. These two, very fortunately, have to do with forms of thinking. So that safely, we can say that the two vital forms of thoughts which the mind performs are creative and critical. Although both forms of thought have their differences, but to greater extent, they are related. It is against this backdrop that this discussion proceeds.

¹ Michael Moriarty (trans.), *Rene Descartes Meditations on First Philosophy, with selections from the Objections and Replies* (Oxford: Oxford University Press, 2008): 19

² Yulin Chang, Bei-Di Li, Hsueh-Chih Chen and Fa-Chung Chiu, "Investigating the Synergy of Critical Thinking and Creative Thinking in the Course of Integrated Activity in Taiwan," *Educational Psychology Journal* 35, No. 3 (2015): 342-343. <https://org.doi/10.1080/01443410.2014.920079>.

³ Mary Moeller, Kay Cutler, Dave Fiedler and Lisa Weier, "Visual Thinking Strategies = Creative and Critical Thinking," *The Phi Delta Kappan*, 95, no. 3 (November 2013): 56-57.

2. Critical Thinking

Thinking cannot be scientific, neither can it be philosophical, if it is not critical. To say that a given line of thought is philosophical or scientific, presupposes its criticality. The act of re-thinking previous systems of thought, in search for better explanations, is one element which cannot be divorced from the art and science of critical thinking. Perspectives on critical thinking are many and varied. However, in a research project undertaken in 1990, at the instance of the *Philosophy Association of America*, with the mandate of finding a consensus on the issue of the definition of critical thinking, the report produced by the participants in the project entitled, *The Delphi Report*, states:

We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criterion-logical, or contextual considerations upon which that judgment is based.⁴

From the above definition, one can surmise that critical thinking consists in the propensity and skills needed to engage in an activity, with reflective skepticism, focused on deciding what to do or believe. It involves arriving at assessments within specific frameworks. It is the means for making reasoned judgments within these frameworks, based on the standards of judgment inherent in the framework. It is thus essentially analytic, evaluative, selective, and highly rule-bound. Given the necessary information within the framework and the appropriate techniques of reasoning, arriving at judgments is almost algorithmic. In thinking critically one is, however, confined to the specific framework. Since it is circumscribed by the logic of the framework, critical thinking may not provide the means to transcend the framework itself, nor to question its assumptions. To be critical means to spot-out inadequacies and flaws that fraught a given postulation or argument; in a word, to be unrelentingly inquisitive. It involves the

⁴ Peter A. Facione, "The California Critical Thinking Skills Test: College Level Technical Report – Experimental Validation and Content Validity," (1990): 2. <http://www.eric.ed.gov/ERICWebPortal/recordDetail?accno=ED327549>.

attitude of raising questions which eventually unveil loop-holes, hitherto unseen by others. Georg Wilhelm Friedrich Hegel in the preface to his *Phenomenology of Spirit*, argues: "that spirit is never at rest but always engaged in moving forward."⁵ This unrest which the mind, spirit or reason embarks upon, is the hallmark of the art of criticality. It entails picking up the rubbles of a crumbled system, cleaning them up, finding the points where the essential marks were missed, refurbishing the system, and presenting something whole and new to the intellectual community. Philosophy thrives on critical thinking. The whole enterprise of questioning established doctrines about the world, of escaping any of the methods of sustaining beliefs, such as tenacity, the use of authority, the recourse to *apriority* or *necessity* and intuition, all show the profundity of a critical endeavour. It was because Kant took as his philosophical agenda, the task of finding the powers and limits of the mind, that his philosophy is rightly called a Critical philosophy. When the mind enters upon a critical activity, it seeks the deepest truth about a matter; the best knowledge ever obtained, in an objective pursuit, without regard to whether the new findings correspond to preconceptions of the matter. It is therefore paradigmatic of critical thinking to put to great use the categories of systematicity, structure, orderliness, neatly working out answers to puzzles, from a given logical pattern, a scrupulous check of flaws, presentation and refutation of arguments, etc.

In the words of Ulger: "critical thinking skills entail the ability to identify and focus on a problem in order to understand and judge the validity and consistency of the hypothesis and information."⁶ In essence, critical thinking is evaluative; it deals with the assessment of facts before making decisions. Consequently, in practical terms the process of being critical about a problem involves: first, stating the problem, second, formulating a hypothesis to solve the problem, third, inferring a conclusion from this hypothesis, and fourth, evaluating the strength of this

⁵ Wilhelm Friedrich Hegel, *Phenomenology of Spirit*, trans. Michael Inwood (Oxford: Oxford University Press, 2018): 8.

⁶ Kani Ulger, "The Relationship between Creative Thinking and Critical Thinking Skills of Students," *H. U. Journal of Education* 31, no. 4 (2016): 696.

conclusion.⁷ It is this final step of judgment and evaluation that makes the whole endeavour a critical one. It is at this point that the mind questions itself regarding the possible flaws that might be raised about the position it has taken.

This moment, demands the intellectual virtues of honesty, accurate perception, fair-mindedness and cognitive courage. In such an evaluation, the fundamental principles of logic must experience the influx of the realities of human existence, in order to prove tenable. The search for the best possible way to describe the universe would be the movement from the atomic universe as postulated by the atomists, to the medieval synthesis as achieved by Thomas Aquinas. The same attitude would be responsible for a rejection or abandonment of the medieval paradigm, for a search for a more reliable explanation, at the rise of the modern age, with a strong scientific temperament. Of course, the same spirit would account for a movement from that conceptual grid or matrix, to the rationalism of Gottfried Leibniz and Baruch Spinoza, as well as the empiricism of David Hume, John Locke and George Berkeley. The same spirit would motivate the idealists to search for an identity between our thoughts and our world, and of course, in the latter decades, the existentialists, would seek to dismantle every idealistic system. A common denominator in all of these, is the refusal to be stagnated by previous achievements, and the quest for new discoveries.

3. Creative Thinking

Very often, one might confuse creativity with innovation, but a subtle discrepancy exists between them. While creativity deals with thinking out new ideas, innovation concerns the actual activity of concretizing those new thoughts. Nevertheless, whatever we may say, creative thinking is a skill, both of science and art. When familiar problems befall man, very easily, we apply ready-made solutions, to get them out of our way. But, when novel problems present themselves to man's mind, they invariably require new mechanisms. This arduous search for a new approach at resolving

⁷ David A. White and Robin Robinson, "Critical Thinking and Artistic Creation," *The Journal of Aesthetic Education*, 35, no. 2 (Summer, 2001): 77-78.

unprecedented or what we may call 'non-routine' problems in the words of Kani Ulger, is what is aptly called 'creativity'.⁸ Man, a subject of multiple possibilities, is first and foremost, a rational figure whose very nature it is to dominate every possible domain. This inherent trait in all men, is in our reckoning, what is responsible for his insatiable desire to know. By virtue of his mind, he is able to creatively open the universe to hitherto unknown worlds. The indispensable nature of creative thought to human survival, is well-expressed in an article which reads: "A lack of creativity is clearly problematic in a rapidly changing, technologically-oriented world, where generating new ideas is essential to survival."⁹ Creative thinking is the art and science of applying the imaginary powers of the mind at resolving problems. It is essentially generative, spontaneous, and non-evaluative. It involves divergent thinking, rule-breaking, the suspension of judgment, and leaps of imagination. And, instead of being characterized by logic or appeal to reasons, it relies heavily on intuition, and unconscious processes. To a very large extent, it involves the activity of risk-taking, openness of the reasoning abilities, a relaxed atmosphere wherein the mind is allowed to 'roam the universe' in search of possibilities. The courage to fail, make mistakes, and yet plunge oneself into the very search for answers, even when none is forth-coming, is very important. This element of a renewed effort in the face of failures, can be seen in Descartes' methodic doubt. Sequel to the above, creative thinking encourages the mind to use a variety of approaches to solve problems, analyze multiple viewpoints, adapt ideas, and arrive at new solutions. Sometimes it is referred to as divergent thinking. In creative thinking, the attitude of being judgmental is detrimental to its progress. No idea is stupid or unworkable.

The wildness of the idea, is what makes it new, and it is only when it has been reflected upon, can one come to understand and unravel the deep insights embedded within it. And so, with

⁸ Ulger, "The Relationship between Creative Thinking and Critical Thinking," 697.

⁹ Jesse Pappas and Eric Pappas, "Creative Thinking, Creative Problem-Solving and Intensive Design in the Engineering Curriculum: A Review," *American Society for Engineering Education*, (January, 2003, Session 2325): 3.

creative thinking, new strategies are born, and the processes which characterizes the science of creative thinking involve: fluency, flexibility, originality, and elaboration. A good instance of the originality and flexibility which embody the art of creative thinking, would be the inclusion of the phenomenon of time by Albert Einstein in his Physics. With him, everything became relativized. By including time, he did what Isaac Newton could not achieve in his laws of gravity. But a more prominent prodigy of creative thinking in philosophy, would be Immanuel Kant's Copernican revolution,¹⁰ in Epistemology. Prior to Kant, philosophers understood the phenomenon of knowledge as a process whereby the mind conforms to what is out there in reality. But Kant turned that paradigm on its head, and posits that 'instead of the minds conforming to the object of knowledge, it is the object of knowledge, that conform to the cognitive faculties. With this breakthrough, Kant answered much of the old perennial questions in philosophy, thus opening the doors, to more serious speculations. In fact, one can say that without him, figures like Schelling, Fichte and Hegel could never have found it easy in their attempt to understand the world. As Thomas Kuhn clearly pointed out in his work: *The Structure of Scientific Revolution*, "science does not seem altogether the same enterprise as the one discussed by writers in the older historiographic tradition. By implication, at least, these historical studies, suggest the possibility of a new image of science."¹¹ Of course given that it is with the existence of paradigms that normal science, as Kuhn calls it, lives on in every age, if there is no creative thinking, if there is no conception of new ideas, and hatching of these ideas, science cannot and would not be able to remain relevant to man. This is what gives it its new image; namely, when a certain paradigm has proven incapable of resolving certain problems. Recurrent failed attempts, can trigger-off creative thinking, and when such is the case, new methods invariably emerge. The benefits of creative thinking include: the

¹⁰William Lawhead, *The Voyage of Discovery: A Historical Introduction to Philosophy*, Fourth edition (Stamford: Cengage Learning, 2015): 358.

¹¹ Thomas Kuhn, *The Structure of Scientific Revolution* (Chicago: The University of Chicago Press Chicago and London. 1996): 2.

strength and courage for taking risks, helps the mind develop the ability to deal with ambiguity and unstructured problems; helps the reasoning abilities appreciate multiple perspectives; promotes the practice of innovation given that there are always new ideas to engage oneself with.

4. The Synergy between Critical and Creative Thinking

Although approaches differ greatly regarding the acquisition and application of the skills of both critical and creative thinking, but unprecedented breakthroughs have been achieved in the history of man because of the unifying powers of both forms of thought.¹² That intellectual discipline and rigor, called criticality, is at home with originality and productivity, called creativity, are inseparable aspects of the excellence of thought. Beyond that, although it is the nature of the mind to create thoughts whenever it is faced with problems, if such 'new ideas' are not backed with the element of criticality; the aim of such thoughts, to solve problems might not be achieved. Richard Paul and Linda Elder put this beautifully when they aver that a thinking which has a goal in mind, requiring posing problems and reasoning out intricacies, requires both critical and creative thinking, for both are intimately connected to figuring things out. For indeed, all truly excellent thinking combines these two dimensions. Consequently, whenever thinking excels, it excels due to successful designing, originating, the production of results and outcomes appropriate to ends of that particular thinking.¹³

Creative thinking, deals with revolutionary thoughts and ideas, jettisoning every form of dogmatism, clears the way for the methods of science which thrive on hypotheses and experiments. And so, if creative thinking is foundational for the acquisition of novel knowledge in every domain of life, be it philosophy or

¹² Richard Paul and Linda Elder, "Critical Thinking: The Nature of Critical and Creative Thought," *Journal of Developmental Education*, 30, No. 2 (Winter 2006): 34-35.

¹³ Paul and Elder, *Critical Thinking: The Nature of Critical and Creative Thought*, 36.

science, it is thus indispensable for any valid understanding of the world we live in. If what has been said about creative thinking bears any truth, and if creative thinking points to critical thinking, it is a futile task to work at achieving one without the other, or even to try to separate them. In the end, both forms of thinking, if neatly coalesced, are what will sharpen the mind, strengthening it to become more sensitive to problems and attempt to offer solutions. Hence, in the light of the foregoing discussion, the following points should be made clear: the seeming opposition between critical thinking and creative thinking is false, and it is mistaken to view them as radically different and unconnected. First, it can be shown that thinking critically plays a crucial role in innovation. Innovation must be viewed in terms of creating products which are not simply novel but also of value, and critical judgment is crucially involved in such creative achievement. In any creative solution to a problem, the initial recognition that there is a problem to be solved, the identification of the nature of the problem, and the determination of how to proceed all involve critical assessment. Initially, the realization that there is a problem to be solved, that there are phenomena in need of explanation or exploration involves judgment. The recognition that a new direction or approach is required is an evaluation based on knowledge and an understanding of the problem situation. And there is judgment involved in determining the general range and form of possible solutions to problems or next moves in creating, the ideas and directions that might be fruitful, and even the ideas that will count as solutions or achieve the completion of a work. Thus the idea that creative thinking is not dependent upon critical thinking will not hold up under scrutiny. Second, the idea that creative thinking is essentially rule-breaking can also be questioned. It is frequently the case that innovation requires the breaking of a rule or rules of the framework in question, but it is generally only very few rules that are broken. The majority remain intact, and give coherence to the activity, not ignoring the background of rules and rule-governed activity against which any creation occurs, and the continuity between an innovation and that which precedes it. This continuity points to the fact that creative thinking is not grounded in irrational processes but is, in fact, a

reasonable response to a problem situation. Creativity is not merely a question of generating new solutions to problems, but of generating better solutions, and is thus not a matter of arbitrary novelty or random invention, but involves change which is effective, useful, and significant.

Such a change is connected with high-level skills and in-depth knowledge in an area, with a profound understanding of the problem situation and with attempts to solve these problems in ever better ways. This implies highly developed critical judgment. Critical thinking is, thus, intimately involved in creative production. It can also be demonstrated that critical thinking is not merely analytic, selective, and confined to frameworks, but has imaginative, inventive, constructive aspects. Definitions of critical thinking generally make reference to assessing on the basis of reasons (e.g. Ennis: "the process of reasonably deciding what to believe or do"¹⁴; Siegel: "being appropriately moved by reasons,"¹⁵ but such assessments are not generally clear-cut or mechanical. They require an imaginative contribution on the part of the assessor. Even with in traditional subject areas which are considered technical, the critical thinker must go beyond the confines of the given information, supplying imaginative constructs. Perkins has made this point with respect to mathematics: "The evident challenge posed by many mathematical problems plainly calls upon the problem solver's powers of invention. To be sure, if a mathematical problem allows a solution by sheer guesswork or systematic computation, with no need to discover a path from given to answer, then imagination need play no role. But virtually all serious mathematical problems do not surrender so easily, otherwise they would not count as serious."¹⁶

¹⁴ Richard Ennis, "Rational Thinking and Educational Practice," in *Philosophy of Education (80th yearbook of the National Society for the Study of Education*, vol. 1), ed., Jay Soltis (Chicago: The National Society for the Study of Education, 1981): 18.

¹⁵ Irwin H. Segel, "Critical Thinking as an Educational Ideal," *Educational Forum* (November 1980): 7-8.

¹⁶ Dorothy Perkins, "Reasoning as Imagination," in *Creativity, Education, and Thought*, eds., Stewart Bailin, Dorothy Perkins and Irwin Winchester (Interchange, 16, 11985): 15-16.

This is all the more true in the case of informal reasoning, where considerable invention is required of the creative thinker. Even in the case of assessing individual arguments according to the criteria of informal logic, the procedure is not merely technical or algorithmic. Identifying assumptions, inventing hypotheses, generating counter-examples and constructing counter-arguments are all examples of aspects of informal reasoning which require imagination. Ennis argues that, such reasoning activities as observing, inferring, conceiving alternatives, and offering a well-organized line of reasoning are all activities in which "the thinker contributes more than evaluation to the result."¹⁷ Scriven sums up this point nicely when he states: "the very process of criticism necessarily involves the creative activity of generating new theories or hypotheses to explain phenomena that have seemed to other people to admit of only one explanation."¹⁸ Moreover, critical thinking involves more than assessing isolated arguments according to clearly-defined criteria and using specifiable techniques, as Richard Paul has pointed out in his critique of 'weak sense' critical thinking.¹⁹ In actual instances of critical reasoning, it is rarely the case that we pass definitive judgment on isolated arguments. Rather, we judge between conflicting points of view, and adjudicate among competing arguments. And certainly the criteria of informal logic provide one basis for doing so. Yet, such criteria are seldom decisive in and of themselves, and what the critical thinker must do is to construct a new view which resolves the problems posed by the conflicting views and synthesizes the soundest aspects of each into a new and coherent whole. Even in those cases where one of the views is, in the end, wholly accepted or rejected, serious assessment must involve an understanding of the strengths of both views, and a 'sympathetic reconstruction' of the strongest arguments for each; and this is a dialectical aspect of

¹⁷ Robert Ennis, "A Conception of Rational Thinking," in *Philosophy of Education*, 1979 Edition, ed., Jerrold Coombs (Normal, Illinois: Philosophy of Education Society, 1980): 5.

¹⁸ Joseph M. Scriven, *Reasoning* (New York: McGraw-Hill, 1976): 36.

¹⁹ Rand Paul, "Teaching Critical Thinking in the Strong Sense: A Focus on Self-Deception, World Views, and a Dialectical Mode of Analysis," *Informal Logic* 4, No. 2 (1982): 2-3.

critical thinking which clearly requires imagination and invention.²⁰

5. Harnessing Critical and Creative Thinking Skills for Nation-Building: Recommendations for Tackling the Nigerian Situation

So far, the discussion has been largely theoretical. So, at this juncture, I shall attempt to apply the insights of the discussion to the Nigerian situation, in order to have some feel of practicality. Apart from merely including the skills of critical and creative thinking in the National Policy on Education, a conscious and concerted effort has to be made to implement them. In Nigeria, schools should emphasize creative and innovative techniques starting from the primary level, and the exercise of divergent and disruptive thinking. Thinking is the base of all cognitive activities or processes and is unique to human beings. It involves manipulation and analysis of information received from our environment. Such manipulation and analysis occur by means of abstracting, reasoning, imagining, problem-solving, judging, and decision-making. Many great breakthroughs and discoveries in art, science and innovation have resulted from combining creative and critical thinking skills. Admittedly, the African school system in general, and Nigeria in particular, needs a paradigm shift and a radical change in the culture of learning and education of students. Teaching critical and creative thinking will trigger that shift and transformation. It will lead to an awakening or renaissance in schools. Part of the reason for Africa's under-development, and Nigeria in particular, is a dearth of requisite intellectual skills. However, Reuven Feuerstein, an Israeli clinical-development psychologist who created a detailed psycho-educational theory based on the fundamental belief on an individual's capacity to change, even if labeled 'developmentally delayed' or 'learning disabled.' For him, there are two ways in which we learn: direct learning and mediated learning. In direct learning, the major

²⁰ Rand Paul, "Critical Thinking and the Critical Person," in *Thinking: The Second International Conference*, eds., Dorothy Perkins, Jeffrey J. Lockhead and Joshua Bishop (Hillsdale, N.J: Earlbaum, 1987): 373-374.

source of cognitive development is the exposure to and interaction with stimuli from the environment, represented as the stimuli (S)-child (O)-response (R) [S-O-R], while mediated learning involves the conscious exposure and awareness by teachers, parents or even more competent peers to incoming stimuli in order to ensure that people understand the world around them; represented in the interaction among the stimulus (S)-human mediator (H)-Child (O)-human mediator (H)-response (R) [S-H-O-H-R]. Mediated learning experience rests on the fact that anyone can be taught (mediated) how to learn and how to think. In other words every human being is cognitively modifiable at any age.²¹ So, fostering critical and creative thinking skills in our pedagogy, will equip the Nigerians of today to confront the challenges of the 21st century and beyond. In a bid to confront these challenges, efforts should be made globally to educate students in line with the relevant skills. Frameworks such as the Partnership for 21st Century Skills, the enGauge Framework from the North Central Regional Education Laboratory and the Metiri Group, the Organization for Economic Co-operation and Development Competencies, National Leadership Council for Liberal Education and America's Promise Essential Learning Outcomes, the International Society for Technology in Education National Education Technology Standards for Students (ISTE), the Educational Testing Service ICT Digital Literacy Framework, and the Jenkins' digital literacies based on new media have advocated skills considered important for the 21st century.²²

All of these, will help to make sense of a world marked by a rapid flow of information and misinformation, and prepare them to participate and contribute to a global economy driven by increasing automation, technological innovations and disrup-

²¹ Reuven Feuerstein and Louis H. Falik, "Structural Cognitive Modifiability and Neural Plasticity: Confronting the Possibilities," *Proceedings of the Jerusalem International Conference on Neural Plasticity and Cognitive Modifiability*, June 2-5, 2013 (Italy: Medimond): 2-4

²² Kingsley Chinaza Nwosu, Rose Chinwe Ebenebe, Gabriel Chidi Unachukwu, "Mediating Critical Thinking Skills among Nigerian students: What Instructional Practices and Classroom Learning Environment can enhance these Skills?" <https://www.researchgate.net/publication/281821505> (Accessed on March 21, 2022).

tions. Thus, in the different sectors of national life (socio-political, economic, religious, legal, educational, etc.) there has to be a conscious effort to cultivate and inculcate the skills and values adumbrated above. Since creativity is one of the most sought after skills by employers, companies and businesses will constantly need persons who can bring fresh ideas or unorthodox solutions to problems. Businesses want to hire people who are problem-solvers, those who would grow, not ground their services and activities; those who would steer their businesses in profitable and productive directions. Thus, innovativeness remains a critical element of human endeavor that influences so many aspects of human life. From technology to economy, to the devices we use and how connected we all are, innovation is at the center of what tomorrow's existence will be for humanity. But, at the center of innovative development is the academia. Some of the changes that brought us to today's realities were hinged on discoveries and inventions of persons who were in the academic circle. The Western world and Asia are fast outpacing us in this aspect. Japan, long known for sleek and economically innovative cars are fast venturing into newer technology. Our government and those at the helm of educational affairs should consider fostering innovative thinking in the sciences, commerce, and art. We have a rich history, energetic people and a whole mountain of a problem waiting to be solved and surmounted when we start thinking innovatively. Nigeria and the various ethno-cultural factions within it have long since developed some homespun structures for innovative thinking. But, the problem is that these 'forms of thinking' have not been properly formalized, and they have no research in terms of history, impact, and possibilities. With a sense of determination to grow, and with the requisite support from the global community, there is no doubt that the limitations of the Nigerian nation, can be transformed into greatness and strength, if enough effort is made to think through those limitations.

6. Conclusion

This has been a very engaging discussion, from conceptual clarification to a sustained analysis of two forms of thinking:

critical and creative. Furthermore, some examples in the history of philosophy were used to show how these forms of thinking have charted the direction of progress in human inventions. Also, an attempt was made to use the Nigerian locale as a case-study, regarding the applicability of the virtues of these two forms of thinking. Finally, recommendations were offered on the direction to take, in order to actualize our aspirations for a stronger and better nation. Without doubt, the ability to produce new ideas, juxtapose them and sift out what is relevant for addressing a given problem, is a sign of a critical and creative mind, which can withstand the arduous test of time. Thus, when both forms of thinking are used together, many ground-breaking achievements can be recorded.