

THOMAS KUHN'S INCOMMENSURABILITY THEORY: IMPLICATIONS FOR ETHNIC DIVERSITY IN NIGERIA

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Abstract

This study examines Thomas Kuhn's Incommensurability theory and its implications for ethnic diversity in Nigeria. Science offers a unique explanation of phenomena in the universe through the formulation of theories. There are many theories in the scientific world today. The history of science attests to this. The problem of ascertaining the nature of the relationship between successive and different scientific theories or paradigms is a controversial issue among philosophers of science. Philosophers of science have advanced different ideas to explain such relationship. Logical positivists argue that successive scientific theories are actually related; and such relationship gives room for objective comparison between them. Karl Popper maintains that critical discussion and comparison of different scientific frameworks is possible. However, Thomas Kuhn employed the term 'incommensurability' to describe the relationship between successive and different scientific theories. Thus, he denies any common measure or standard for evaluating them. This study employs analytical and hermeneutical methods to examine Kuhn's incommensurability theory in order to discover its implications for ethnic diversity in Nigeria. Nigeria has many ethnic groups, and often, there are conflicts between them. The conflicts may partly be attributed to misunderstandings arising from evaluating one ethnic group with the standards of another ethnic group. This study maintains that attention to Kuhn's incommensurability theory would enable Nigerians understand that each ethnic group is unique, and as such may not be properly evaluated with the standards of another ethnic group. The study concludes that attention to Kuhn's incommensurability theory would help curtail ethnocentricism, and thus engender peaceful co-existence between different ethnic groups in Nigeria.

Introduction

Science has contributed immensely, and it is still contributing to man's understanding of the universe through its unique explanation of phenomena. Scientific discoveries are normally articulated in scientific theories. According to Wikipedia:

Scientific theories are the most reliable, rigorous and comprehensive form of scientific knowledge, in contrast

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to more common uses of the word 'theory' that imply that something is unproven or speculative (which is better defined by the word hypothesis).¹

Many theories have been propounded in the scientific world. Some scientific theories seem to be related, while some of them seem to conflict with one another. The fundamental question is: What is the nature of the relationship that exists between different or successive scientific theories? It ought to be stated 'ab initio' that the nature of the relationship between successive or different scientific theories or paradigms is a controversial issue in Philosophy of Science. Philosophers of science have advanced different views, and they disagree among themselves on the nature of such relationship. The foundational members of the contemporary philosophy of science are the Logical positivists or Logical empiricists. They argue that successive scientific theories are related such that objective comparison and choice between them are possible. Many philosophers of science reacted to the controversial view of the logical positivists, either in support or in opposition to their views. Karl Popper, a renowned philosopher of science who is well-known for his 'Critical Rationalism', argues that different scientific theories or frameworks are comparable. According to him, "a critical discussion and a comparison of the various frameworks is always possible."² This implies the possibility of the existence of the standards for such critical discussion and comparison. Some philosophers of science like Thomas Samuel Kuhn and Paul Feyerabend are not comfortable with this position. Hence, they argue that successive or competing scientific theories are incommensurable. Precisely, Thomas Kuhn insists on the incommensurability of different scientific theories in his book, *The Structure of Scientific Revolutions*. This is as a result of his belief that a new theory arises with destructive and conflicting changes. According to him:

It is hard to see how new theories could arise without these destructive changes in beliefs about nature. Though logical inclusiveness remains a permissible view of the relation between successive scientific theories, it is a historical implausibility.³

This led Kuhn to deny any common measure or standard for evaluating successive scientific theories.

This study tries to discover the implications of Kuhn's incommensurability theory for the problem of ethnicity in Nigeria. There are many ethnic groups in Nigeria. People from the same ethnic group have common origin and culture. There are more than 250 ethnic groups in Nigeria, each having a distinct origin and culture. There have been misunderstandings and conflicts between different ethnic groups in Nigeria. These misunderstandings and conflicts may partly be as a result of evaluating a particular ethnic group with the values and standard of another ethnic group. Thus, the basic questions are: Does Kuhn's incommensurability theory actually has implications for ethnic diversity in Nigeria? Can one evaluate an ethnic group in Nigeria with the values and standards of another ethnic group? Are there common measures for evaluating different ethnic groups in Nigeria? Can attention to Kuhn's incommensurability theory help engender peaceful co-existence among different ethnic groups in Nigeria? This study argues that Kuhn's incommensurability theory has serious implications for ethnic diversity in Nigeria. Thus, the investigation of the implications of Kuhn's incommensurability theory on ethnic diversity in Nigeria becomes very necessary in this study.

The Origin and Context Of Thomas Kuhn's Incommensurability Theory

The term 'Incommensurability' became very prominent in philosophy of science during the era of Thomas Kuhn and Paul Feyerabend. In fact, it was both of them who first used the term in Philosophy of Science. It was originally used in Mathematics. This implies that the concept did not originally belong to the domain of philosophy of science. However, Thomas Kuhn and Paul Feyerabend used it in Philosophy of science to "describe the relationship between successive scientific theories."⁴ They argue that the concept of incommensurability explains the nature of such relationship. Though both of them made use of the concept, it ought to be noted that there is a notable difference in their conceptions of the term. The discussions in this study centres only on Thomas Kuhn's understanding and usage of the term.

Thomas Kuhn used the term 'incommensurability' in the context of his idea of scientific development. In disagreement to Logical Positivists' linear conception of scientific development, he argues that science develops through revolution which comes up after a long period of 'Normal Science.' He distinguished between normal science and revolutionary science, and described normal science as paradigm based research. In his words:

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Normal science consists in the actualization of that promise, an actualization achieved by extending the knowledge of those facts that the paradigm displays as particularly revealing, by increasing the extent of the match between those facts and the paradigm's predictions, and by further articulation of the paradigm itself. ⁵

During normal science, the prevailing paradigm is not called to question, but rather it is further refined. Hence, scientists accept the prevailing theory or paradigm during normal science, and conduct their research within the conceptual world-view of the prevailing theory. However, in the course of normal scientific research, an anomaly may occur when the paradigm fails to function properly. An accumulation of anomalies leads to crisis which may end up in a revolutionary science or scientific revolution. Kuhn maintains that after scientific revolution, the new theory that comes up becomes another normal science, and this, for him, is the developmental pattern of science. It is in this context that Kuhn articulated his incommensurability theory. He argues consistently that successive or competing scientific theories or paradigms are both incompatible and incommensurable. Let us at this juncture examine Kuhn's idea of incommensurability.

Thomas Kuhn's Incommensurability Theory

Incommensurability theory is one of the major contributions of Thomas Kuhn in philosophy of science. It is a very prominent concept for Thomas Kuhn, and it seems to be the central aspect of his philosophy of science. His employment and usage of the concept elicited conflicting reactions from scholars. This is as a result of the fact that it contradicts logical positivists' idea that different scientific theories are related such that there is room for objective comparison between them. The term 'incommensurability', for Kuhn, implies that two scientific theories or paradigms are different from each other such that direct and point by point comparison of both of them may be rendered very difficult.

It ought to be noted that Kuhn articulated his earlier views on incommensurability in *The Structure of Scientific Revolutions* in which he argues that after scientific revolution, scientists conceive the world differently. He argues thus:

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Successive paradigms tell us different things about the population of the universe and about that population's behaviour. They differ, that is, about such questions as the existence of subatomic particles, the materiality of light, and the conservation of heat or of energy. These are the substantive differences between successive paradigms, and they require no further illustration. But paradigms differ in more than substance, for they are directed not only to nature but also back upon the science that produced them. They are the source of the methods, problem-field, and standards of solution accepted by any mature scientific community at any given time. As a result, the reception of a new paradigm often necessitates a redefinition of the corresponding science.⁶

Successive scientific paradigms are quite different from each other. It becomes obvious, for Kuhn, that change in paradigm brings about change in the scientists' perception of the world. In his words:

...paradigm changes do cause scientists to see the world of their research- engagement differently. In so far as their only recourse to that world is through what they see and do, we may want to say that after a revolution, scientists are responding to a different world.⁷

It becomes obvious, for Kuhn, that scientific revolution and its accompanying paradigm shift bring about change in the meanings and referents of words such that a particular term may mean different things in different scientific paradigms. Thus, different scientific paradigms are incommensurable. Kuhn had a very strict idea of incommensurability in *The Structure of Scientific Revolutions*. He insists that schools guided by different scientific theories or paradigms 'talk through' or 'talk past' each other in a paradigm debate. The reasons for this are not far-fetched because there is change in scientists' perception of things after scientific revolution, and they interpret data within the framework of a particular scientific theory or paradigm. The scientists are like people putting on inverting lenses after scientific revolution. This is as a result of Kuhn's view that different scientific paradigms or theories make different predictions about phenomena.

The new paradigm that emerges after scientific revolution brings about total changes in belief about nature. Successive paradigms or theories say different things about the universe and thus, they differ substantially as well as significantly. Hence, scientists subscribing to two different scientific paradigms fail to make complete contact with each other's view-points. Kuhn insists on incommensurability of standards between two paradigms and denies any common measure or standard for evaluating them. For him, the proponents of competing paradigms work in different conceptual worlds, and they may not easily understand one another. Illustrating further, he states:

But in some areas they see different things, and they see them in different relations one to other . That is why a law that cannot even be demonstrated to one group of scientists may occasionally seem intuitively obvious to another. Equally, it is why, before they can hope to communicate fully, one group or the other must experience the conversion that we have been calling a paradigm shift.⁸

It becomes very clear from Kuhn's specification that scientists adhering to different scientific theories see the same situation differently, and also employ the same words differently. This implies that there is communication breakdown or failure between scientists adhering to different scientific paradigms, and they cannot resort to a neutral language.

Kuhn's earlier views on incommensurability theory in *The Structure of Scientific Revolutions* elicited criticisms from various scholars like Hilary Putnam, Donald Davidson, W.V.O. Quine, Saul Kripke, etc. For instance, Hilary Putnam saw Kuhn's idea as relativistic. In his words: "Kuhn also holds views on meaning and truth which are relativistic and, in my view, incorrect..."⁹As a result of this and other similar criticisms, Kuhn moderated and refined his incommensurability theory in his later works. However, he retained his fundamental points in such moderation and refinement. Two forms of incommensurability are very remarkable in Kuhn's later views on incommensurability, viz. Local incommensurability and Taxonomic incommensurability. Local incommensurability is actually a modest version of incommensurability theory which centres mainly on the issue of linguistics, and precisely that of translation. Here, Kuhn argues that translation between different theories are impossible. Hence, there is no fully adequate translation between different scientific

paradigms or theories. This is possible because of his insistence that meaning is locally holistic such that any change in the meaning of one part of the lexical structure of a scientific theory affects its other parts. Kuhn's initial holistic incommensurability as articulated in *The Structure of Scientific Revolution*, which emphasizes on large-scale miscommunication between the adherents of different scientific paradigms, was refined into local incommensurability due to the criticisms against his initial ideas. As a result of this, instead of insisting on a large-scale miscommunication, Kuhn admits of only a slight miscommunication. Nevertheless, it ought to be noted that he insists on the impossibility of perfect or strict translation between different theories. This is as a result of the fact that some terms that changed their meanings after scientific revolution affect those that retained their meaning, and this makes translation very difficult. Kuhn argues thus:

...the distinction between terms that change meaning and those that preserve it is at best difficult to explicate or apply. Meanings are a historical product, and they inevitably change over time with changes in the demands on the terms that bear them.¹⁰

Incommensurability here focuses on language change and meaning change between different scientific paradigms. Local incommensurability is a threat to translatability between different theories or paradigms.

Also, 'Taxonomic Incommensurability' is very clear in Kuhn's later views on incommensurability. Taxonomy entails the classification of objects. Kuhn argues that scientists paying allegiance to a particular paradigm share a particular taxonomy which is associated with a lexical network. A scientific paradigm has a specific taxonomic structure which is different from that of another scientific paradigm. Kuhn argues that after scientific revolution, the taxonomic structure of the theory changes such that terms are classified differently in the old and new theories. Taxonomic incommensurability is the one that arises from differences in classificatory structures of different scientific paradigms. Due to the fact that objects are classified differently in the different paradigms, direct as well as accurate translation from one to the other is very problematic. The terms in the old and new taxonomies are not easily inter-translatable. Change in the taxonomic structure leads to change of meaning. This poses great problem to translation between different scientific paradigms.

Having briefly articulated Thomas Kuhn's incommensurability theory, it is necessary at this juncture to examine the issue of ethnicity in Nigeria. Such discourse is necessary in order to discover the implications of Kuhn's incommensurability theory on the problem of ethnicity in Nigeria.

Ethnicity In Nigeria

The term 'ethnicity' is derived from the Greek word 'ethos' which is translated as 'nation' in English. Ethnicity refers to a group of people who share a common origin or ancestry, culture, language and ideology. According to Wikipedia

An ethnic group or ethnicity is a category of people who identify with each other based on similarities, such as common language, ancestral, social, cultural, or national experiences. Unlike other social groups (wealth, age, hobbies), ethnicity is often an inherited status based on the society in which a person lives. In some cases, it can be adopted if a person moves into another society. Membership of an ethnic group tends to be defined by a shared cultural heritage, ancestry, origin myth, history, homeland, language or dialect, symbolic systems such as religion, mythology and ritual, cuisine, dressing style, art, and physical appearance.¹¹

Obviously, people from the same ethnic group share many attributes in common. Nigeria is a multi-ethnic country. It is made up of more than 250 ethnic groups. The most populous ones include: Hausa-Fulani, Yoruba, Igbo, Ijaw, Kanuri, Ibibio and Tiv. However, the major and most politically influential ethnic groups in Nigeria are Hausa-Fulani, Igbo and Yoruba. In the words of A. N. Akwanya

Nigeria is a mosaic of many ethno-linguistic groups, some large, many very small indeed, altogether numbering about 250. It is important however to remember that this nation came into being not by amalgamation of all these ethno-linguistic groups, but of two British Protectorates, Northern and Southern Nigeria, which could have gone on to develop independently like Northern and Southern Rhodesia. This act of Amalgamation in 1914 launched it into world political culture on the basis of European nation-

state system rather than on the basis of local political institutions.¹²

The amalgamation of the Northern and Southern protectorates in 1914 brought together people from different ethnic groups into one country called Nigeria. It seems that no serious attention was given to the differences that are very evident in the different ethnic groups. A.N. Akwanya further states that:

The architecture of Nigeria at amalgamation comprised two entities: the Northern and Southern Protectorates. Each of these Protectorates contained large numbers of ethnic and linguistic groups, some large, some small, some not aware of their neighbours; some were organized prior to colonization into kingdoms, states, provinces or outposts of other power systems, while some were entirely clan based with little awareness of far-flung parts of the same ethnic and linguistic group so that amalgamation was in some cases a first step in bringing together the different clans of the same ethnic and linguistic group to a sense of a shared identity.¹³

Given the fact that different ethnic groups have different ideologies, it became imperative that different groups of people with different ideologies have to co-habit in one country. Obviously, Nigeria is a country, but the multiplicity of ethnic groups in Nigeria is a threat to national unity and and peace. Simon A. Rakov buttresses this point thus:

Nigeria is an area the size of the state of Texas in which over three hundred different languages are spoken, and in which the same number of separate cultures desperately try to retain their identity. You can only imagine the ensuing chaos.¹⁴

Ethnicity has actually constituted, and is still constituting serious problems to the development of Nigeria as a country. This is as a result of the fact that many Nigerians are more inclined to promoting ethnic interest instead of the interest of Nigeria as a country. The question: 'From which ethnic group does one come' is always taken very seriously in Nigeria. Such attachment to ethnicity is a big

threat to unity and progress of Nigeria. Attesting to this, Odinukaeze Nnenna states:

There are over 250 ethnic groups and the major ones are Yoruba, Igbo and Hausa. It is however very disturbing that Nigerians have become slaves to their ethnic origins instead of harnessing these diversities towards national development. Nigerians are fanatics when it comes to ethnicity. It is therefore not surprising for a Nigerian to get angry because he/she is wrongly associated with another tribe.¹⁵

Such attachment to one's ethnic group is a very serious issue in Nigeria today, and it is one of the root causes of the problems bedeviling Nigeria as a country. Many activities in Nigeria have ethnic undertone. Also, Odinukaeze Nnenna argues thus:

Furthermore, whatever is done in Nigeria always has an ethnic undertone be it, politics, employment and provision of social amenities. Tribal affiliations are always very strong and visible. Over the years, since independence there have been cases of ethnic violence resulting from allegiance to one's ethnic group and this has not worked well for the development of the country.¹⁶

It is obvious that misunderstandings exist between different ethnic groups in Nigeria. This is partly because of different ideologies, interests and values. Just as Thomas Kuhn argued that scientists paying allegiance to different scientific paradigms 'talk past' each other, and are at cross purposes; the same thing may be applicable to the different ethnic groups in Nigeria. Let us at this juncture examine the implications of Kuhn's incommensurability theory to the problem of ethnic diversity in Nigeria.

Implications Of Kuhn's Incommensurability Theory On The Problem Of Ethnic Diversity In Nigeria

There are many incidences of conflicts between different ethnic groups in Nigeria. These conflicts may be attributed to the issue of lack of understanding between such ethnic groups. The basic question is this: How can there be peaceful coexistence between the different ethnic groups in Nigeria? A.N. Akwanya argues that "Coexistence may suggest a situation of (democratic) equality of the ethnic nationalities and tolerance even though mutual animosity

may be lying underneath"¹⁷ It seems to the researcher that peaceful co-existence among the different ethnic groups in Nigeria may not be completely achieved in the midst of mutual animosity. Such animosity is a very serious threat to peaceful co-existence between the diverse ethnic groups in Nigeria.

However, this study argues that proper attention to Thomas Kuhn's incommensurability theory would help foster peaceful coexistence between the diverse ethnic groups in Nigeria. Serious attempts have been made in the previous sections of this study to examine Kuhn's incommensurability theory. It ought to be noted that there are elements of incommensurability between different ethnic groups in Nigeria. Nevertheless, the different ethnic groups in Nigeria are not completely incommensurable. This implies that there are areas where they are incommensurable, and at the same time there are areas of commensurability. They are commensurable on the levels of being, humanity as well as biological, mental, psychological and physiological constitutions. It is obvious that a human being is a human being irrespective of his or her ethnic group. Every human being has biological, mental, psychological, and physiological constitutions. Humans share common physiology, though distinction is made in this aspect between male and female. It ought to be noted that these areas of commensurability are basically natural endowments.

However, people from different ethnic groups may be incommensurable on the levels of values, language, attitude, tradition, beliefs, customs, ideology, historical origin, religion, ancestry, mythology, national experiences, ritual, homeland, interests, etc. These areas of incommensurability are actually what distinguished one group of people with common origin from another group of people. It seems to the researcher that these areas of incommensurability between the different ethnic groups in Nigeria account for the misunderstandings and conflicts between them. Bearing in mind that there are areas of incommensurability between different ethnic groups in Nigeria, one should not evaluate one ethnic group with the standard of another ethnic group. Though we are fundamentally human, there are areas of differences. Such areas of differences as articulated above render very difficult objective and unbiased comparisons between people from different ethnic groups in Nigeria. For instance, if an Igbo man evaluates an Hausa man with his own values and interests, an Hausa man may not be able to scale through. The same thing applies when an Hausa man evaluates an Igbo man with his own values and interests.

Appreciation of such differences could help engender peaceful co-existence in a country of multi-ethnic groups. This is as a result of the fact that such brings about mutual respect and tolerance between different ethnic groups in Nigeria. Though this sounds relativistic, but such consciousness is a potent means of achieving peaceful co-existence in a multi-ethnic country like Nigeria. It engenders tolerance and mutual respect for the values and customs of the different ethnic groups in Nigeria. At this point of the discussion in this study, there is need to state categorically that in our country Nigeria, the emphasis ought to be on what unites us as members of one country. For us to co-exist peacefully in Nigeria, what ought to unite us is the country's interest, and not ethnic interest. This consciousness would enable us set aside ethno-centrism which is one of the major problems bedevilling Nigeria today, and thus work together for the progress of Nigeria as a country.

Evaluation and Conclusion

This study has given great attention to Thomas Kuhn's incommensurability theory and its implications for the problem of ethnicity in Nigeria. As demonstrated in this study, Nigeria is a multi-ethnic country. The ethnic groups in Nigeria constitute a big threat to the country's unity. This is as a result of conflicts and wars between different ethnic groups. As the researcher argued consistently in this study, the different ethnic groups in Nigeria are both commensurable and incommensurable at different levels. Appreciation of the differences in those areas of incommensurability is of great importance. Obviously, the possible implication of this is relativism as articulated above. Certainly, relativism is a threat to objectivism. However, it ought to be noted that it is difficult to evolve a theory or a system devoid of limitations.

Obviously, there is no human society that is conflict-free. Wherever there are human beings, there are misunderstandings and conflicts. This is as a result of the fact that different individuals perceive things differently, and at times from different perspectives. Also, our thoughts are consciously or unconsciously influenced by our different backgrounds. One's culture has a lot of influences on one's perception and understanding of things. Different ethnic groups in Nigeria have different cultures. Thus, one can imagine the differences in ideology. Nigerians must pay attention to such differences, and be conscious of them always. It is obvious that some of the conflicts between different ethnic groups in Nigeria may partly be attributed to misunderstandings arising from evaluating

one ethnic group with the standards of another ethnic group. Though we are fundamentally human beings, and share some common characteristics in this regard, each ethnic group in Nigeria has its peculiarity and specific identity. Attention to this is very necessary for it instils the spirit of 'live and let-live' in a country of multi-ethnic groups with different ideologies. Attachment to ethnic interest is a serious impediment to unity and progress in Nigeria. There is need to curtail ethno-centricism so that peaceful co-habitation of the diverse ethnic groups in Nigeria can be achieved to a reasonable extent.

End Notes

¹Wikipedia, the Free Encyclopedia, *Theory*, <http://en.Wikipedia.org/wiki/theory>,(10/02/2013).

² Karl Popper, 'Normal Science and Its Dangers' in Imre Lakatos & Alan Musgrave,(eds.) *Criticism and the Growth of Knowledge*, (Cambridge: Cambridge University Press, 1970), p.56.

³ Thomas S. Kuhn, *The Structure of Scientific Revolutions*, (Chicago: University of Chicago Press,1970), p.98.

⁴ Thomas S. Kuhn, *The Road Since Structure*, (Chicago: University of Chicago Press, 2000), p.33.

⁵ Thomas S. Kuhn, *The Structure of Scientific Revolutions*, p.24.

⁶Ibid.,p.103.

⁷Ibid.,p.111.

⁸Ibid.,p.150.

⁹ Hilary Putnam 'The Corroboration of Theories' in Ian Hacking (ed.) *Scientific Revolutions*, (New York: Oxford University press,1987) p.70.

¹⁰ Thomas S. Kuhn, *The Road Since Structure*, p.36.

¹¹Wikipedia, the Free Encyclopedia, *Ethnic Group*, [https:// en.wikipedia.org/wiki/Ethnic group](https://en.wikipedia.org/wiki/Ethnic_group),(10/02/2013).

¹²A.N. Akwanya 'Nigeria: Of Ethnic Diversity and Coexistence' in Linus Okika (ed.) *The Nigeria Project: The Politics, The Problems, The Challenges and Prospects*, (Awka: A-Plus Technologies, 2014),p.10.

¹³ Ibid.,pp.11-12.

¹⁴Simon A. Rakov, *Ethnicity in Nigeria*, [http:// www.postcolonialweb.org/nigeria/ethnicity.htm](http://www.postcolonialweb.org/nigeria/ethnicity.htm).(10/03/14)

¹⁵Odinukaeze Nnenna, *The Problem of Ethnicity in Nigeria*, [http://www. Nigerianobservernews.com/19042014/190](http://www.Nigerianobservernews.com/19042014/190))

¹⁶Ibid.

¹⁷A.N. Akwanya 'Nigeria: Of Ethnic Diversity and Coexistence' in Linus Okika (ed.) *The Nigeria Project: The Politics, The Problems, The Challenges and Prospects*,p.18.