

Factors Shaping Vernacular Architecture of Northern Nigeria

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ABSTRACT

Northern Nigeria is predominantly occupied by Hausa-Fulani's ethnic group whom were involved in constant interaction with different people through contact, trade and also the traditional pilgrimage. The Ancient structures of the Hausa-Fulani in Northern Nigeria (NN) have a special aura around them and a tradition of fine architecture has flourished in the area with the variety and quality of buildings in NN that are bound to generate much delight and enthusiasm in anyone who is interested in buildings and structures. The architecture of the Hausa-Fulani is perhaps one of the least known but most beautiful of the medieval age. This architectural style is known as *Tubali* which means the traditional *architecture* or Vernacular Architecture (VA). There are problems of replacement of the traditional with modern governmental institutions, Modernization and advances in Building construction which affects the perception of the people in NN about the values and pride of their traditional building construction. The combination of these challenges further compound the problems in terms of continuity, development, sustainability of the concept and practice of VA. The aim of this research paper is to assess and discuss the factors shaping VANN with the view of identifying, ranking and examining the impact of how such factors shaped the VANN. The reviewed literatures in the VA field helped in identifying some factors shaping VANN. These factors formed the main body of the questionnaires which was structured based on a 5-point Likert scale and randomly administered to the various construction project professionals practicing within the Northern Nigeria's the built environment. The responses were statistically analyzed using simple Percentage tables, Mean item score/weighted average scores and Chi-square statistics. The result shows that One of the factors was Strongly Agreed, four of the factors were Agreed, Also, one of the factors was deemed Neutral / undecided by the respondents. This is further attested by the hypotheses tested.

Key words: Buildings, Factors, Hausa-Fulani, Modernization, Northern Nigeria, Vernacular architecture.

1. Introduction

1.1. Background to the study

Nigeria officially known as the Federal Republic of Nigeria has been the site of numerous kingdoms and tribal states over the millennia with more than 500 ethnic groups, with varying languages, customs and traditions; making it a country of rich ethnic diversity. Nigeria originated from British colonial rule beginning in the 19th century, with the merging of the Northern and Southern Nigeria Protectorates in 1914 and became a formally independent federation in 1960 (Adam, 2011).

Northern Nigeria is predominantly occupied by Hausa-Fulani's ethnic group, a diverse and culturally homogenous people with the largest population in West Africa because of their inter-marriages and constant interaction with different people through contact, trade and also the traditional pilgrimage (Islamically known as *Hajj*, which is performed in Saudi-Arabia) route across the Sahara Desert (northernnigeriantourism.com).

The Ancient structures of the Hausa-Fulani in Northern Nigeria have a special aura around them and they are of various shapes and sizes. Over the centuries a tradition of fine architecture has flourished in the area with the variety and quality of buildings in Northern Nigeria that are bound to generate much delight and enthusiasm in anyone who

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is interested in buildings and structures. Indeed, the manner after which a building is constructed, and the sheer artistry that is deployed in the effort, combines to reveal aspects of a people's development, their history and culture, and assists in projecting the precise conditions of a people's soul (Oliver, 2006).

The architecture of the Hausa-Fulani is perhaps one of the least known but most beautiful of the medieval age. Many of their ancient mosques and palaces are bright and colorful, including intricate engravings or elaborate symbols designed into the façade (Gunce et al., 2007). This architectural style is known as *Tubali* which means the traditional *architecture* in the Hausa language and globally known as Vernacular Architecture (VA). The term “Vernacular Architecture” (VA) is not an easy term to define. Many studies define it in many different ways such as:

- VA is a true reflection of how generality of people want to build, and is depictive of life style they are comfortable with. In its articulation, it is a product of age-old building traditions of a locale, amalgamated with selectively borrowed practices and features of other cultures the group has interacted with (Oliver, 1983);
- VA is a “native science of building”, the types of building made by people in tribal, folk, peasant and popular societies where an architect, or a specialist designer is not employed (Wikipedia.org);
- VA is defined as architecture that is the outcome of anonymous design period, and objective environmental surrounding that a society forms for itself (Glassie, 1990);
- VA evolved from centuries of experience of a people living under different climatic conditions worldwide. It involves design and construction techniques using locally available resources based on the environmental, cultural and historical background of people (Fatty, 2006; Anselm and Ati, 2010; Kirbas and Hizli);
- VA is an architectural style that is designed base on local needs, availability of materials and reflecting local traditions (Fawcett et al., 2012).
- VA as “a building structure or a constructed shelter of a group of people according to their ethnicity, culture, traditions, religion/beliefs and environment which is constrained by their climate and locally available materials” (Danja et al., 2014).

1.2. Research Problem

The advent of globalization such as advances in transportation (e.g. steam locomotives, steam ships, jet engine, container ships etc.) provides a safer and conducive method of transporting goods and services from one place to another, this impede and hinder the ancient tradition of the caravan, Saharan, trans-Saharan and Sub-Saharan trading and causes abandonment of such trade routes and trade practices. Another problem is the evolution of building science and advances in building technology which is weeding out the traditional practices and craftsmanship, thereby causing the traditional master builders and craftsmen abandon the use of the skills they acquire from the long generation of their ancestors and adopt the use of modern materials.

Moreover, the problem of replacement of the traditional institutions which preserve the culture and traditions of the people with modern governmental institutions. Modernization and advances in Building construction has also affected the perception of the people in Northern Nigeria about the values and pride of their traditional building construction. The combination of these challenges further compound the problems faced by Vernacular Architecture of Northern Nigeria (VANN) in terms of continuity, development, sustainability of the concept and practice.

1.3. Research Aim

The aim of this research paper is to assess and discuss the factors shaping Vernacular Architecture of Northern Nigeria with the view of identifying, ranking and examining the impact of how such factors shaped the VANN.

1.4. Research Hypotheses

To address the research problem fully and to achieve the aim, the following hypotheses were formulated and statistically tested:

- Null Hypothesis (H₀): Vernacular Architecture of Northern Nigeria ***is not*** significantly shaped by some selected factors.
- Alternative Hypothesis(H_A): Vernacular Architecture of Northern Nigeria ***is*** significantly shaped by some selected factors.

1.5. Research Methodology

The main sources of data were from journals, conference / seminar / workshop papers, text books, newspapers, magazines and the internet sources etc., which were used to review literatures in the VA field. This helped in identifying some factors shaping VANN. These factors formed the main body of the questionnaires which was structured using a 5-point Likert scale (Strongly Agree – 5; Agree – 4; Neutral / Undecided – 3; Dis-Agree – 2; Strongly Dis-Agree – 1). These structured questionnaires were manually and randomly administered to the various construction project professionals practicing within the Northern Nigeria’s built environment. Each were administered equal number of questionnaires; in this case 100 number each. The responses were statistically analyzed using simple Percentage tables, Mean item score/weighted average scores and T-square statistics.

2. Literature Review

2.1. Factors Shaping Vernacular Architecture of Northern Nigeria

Hausa-Fulani people are mainly traders, merchants in each of the ancient cities in Northern Nigeria. They seek, collect, buy and trade items needed from various regions and other cities within the trade routes lying along the sub-Saharan Africa to the Mediterranean and red seas. The trades are in the form of trade by barter and other precious objects.



Figure 1. Map of Nigeria showing Northern Nigeria.

The Saharan and the sub-Saharan trade’s routes passing through the Hausa-Fulani dominated regions allowed for the following:

2.1.1. Socialization

Socialization is a term used by sociologists, social psychologists, anthropologists, political scientists, and educationalists to refer to the lifelong process of inheriting and disseminating norms, customs, values and ideologies, providing an individual with the skills and habits necessary for participating within their own society. Socialization is thus "the means by which social and cultural continuity are attained" (Clausen, 1968; Macionis, 2010).

Unlike many other living species, whose behavior is biologically set, humans need social experiences to learn their culture and to survive (Macionis et al., 2011). Although cultural variability manifests in the actions, customs, and behaviors of whole social groups (societies), the most fundamental expression of culture is found at the individual level. This expression can only occur after an individual has been socialized by his or her parents, family, extended family, and extended social networks (wikipedia.org). As such, the Hausa-Fulani people in northern Nigeria socialize with people from different parts of Africa and middle eastern Arabs through trading. This socialization allows them to interact, integrate, copy, and adopt many norms and of their neighboring countries and their trading partners, some of which are seen in their daily lives and in their traditional buildings.

2.1.2. *Cultural Amalgamation*

As the name indicates culture is simply the total way of life of a particular group of people while amalgamation is defined as the coming together of two or more different groups to form a new one which is stronger and better than all the groups' separately. Cultural amalgamation happens when two cultures mix to form types of new culture. The Hausa-Fulani in northern Nigeria amalgamated with people from different part of Africa through inter-marriages between them and the people along the trans-Saharan trade routes and the pilgrimage "Hajj" routes to Mecca in Saudi Arabia. Predominantly Hausa language is widely spoken throughout West Africa. Hausa-Fulani ranks as one of the world's major languages, and it has a widespread use in a number of countries of West Africa. It's rich poetry, prose, and musical literature, is increasingly available in print and in audio and video recordings. The study of Hausa-Fulani's provides an informative entry into the culture of Islamic West Africa. Throughout West Africa, there is a strong connection between Hausa-Fulani and Islam (wikipedia.org; Hausa city states n.d.).

As such we can say that the Hausa city states emerged as southern terminals of the Trans-Saharan caravan trade. This trading allows them to amalgamate some cultures of some ancient cities such as GAO and Timbuktu in the Mali Empire. The result of these cultural amalgamations can be witnessed not only in their buildings and construction processes but also in their building designs.

2.1.3. *Borrowed Religious Practices*

Islam is the predominant and historically established religion of the Hausa people. Islam has been present in Hausa-Fulani land as early as the 11th century. The Islamic population grew as the religion was brought by traders and Islamic preachers from North Africa, Bornu, Mali and Guinea(wikipedia.org). Muslim scholars of the early 19th century disapproved of the hybrid religion practiced in royal courts. A desire for reform contributed to the formation of the Sokkoto Caliphate (wikipedia.org; Hausa city states n.d.).

"*Maguzanchi*", as an African Traditional Religion, was practiced extensively before Islam in the Northern Nigeria. In the more remote areas of Hausa land, the people continue to practice *Maguzanchi*. Closer to urban areas, it is not as common, but with elements still held among the beliefs of urban dwellers. Practices include the sacrifice of animals for personal ends. People of urbanized areas tend to retain a "cult of spirit possession," known as "Bori" which incorporates the old religion's elements of African Traditional Religion and magic (Adeline, 2011).

With the arrival of Fodiawa trio, which bring about the emergence of Sokkoto caliphate, generally recognized as commencing in 1808 (with the successful jihad of 'Uthman Dan Fodio). They brought about so many rules and regulations which are adopted in their land tenure system and architecture. Some of them are applicable to the morphology of compounds as the nucleus of urban formation in cities of the Sokoto caliphate and other regions of the Hausa-Fulani land. Some of the rules are a neighbor should not harm one another in the sense that a person should avoid things that cause harm to his neighbor; things like building stable near neighbor's house, building a place for blacksmith work or grinding near a neighbor's house, opening a window that overlooks a neighbor's private domain, a door constructed in a house or a structure on a public street must not face another door directly across the street but must be set back from it to prevent a direct visual of the neighbors corridor and maintenance of sewage or waste water channels with the help of the other neighbors (Hakim and Ahmad, 2006).

2.1.4. *Exchange of Ideas*

The Hausas are one of the ethnic groups living in the Sahel-Saharan regions, and as a result have influenced each other's cultures to varying degrees through exchange of ideas in many aspects of their lives. These idea exchanges ranges from the form of their daily life routines, down to their building designs which have a special aura around them and vary in shapes and sizes with a fine tradition that flourished in the area over the centuries. The variety and quality of these buildings found in Northern Nigeria are bound to generate much delight and enthusiasm in anyone who is interested in buildings, VA and structures. The skill sets demonstrated by the traditional master builders in Northern Nigeria and the artistic engravings designed by the traditional hand engravers found in the buildings combines together to show not only the traditions and cultures but also the exact development and civilization of the people which are all achieved through exchange of ideas.

2.1.5. *Trade*

Trade involves the transfer of the ownership inform of buying and selling of goods or services, from one person or entity to another, in exchange for money, goods or services. The original form of trade and or barter, saw the direct exchange of goods and services for other goods and services. Barter is trading things without the use of money (Samuelson, 1939). Trade was the key to the emergence of organized communities in the savannah portions of Nigeria. Prehistoric inhabitants adjusting to the encroaching desert were widely scattered by the third millennium BC, when the desertification of the Sahara began. Trans-Saharan trade routes linked the western Sudan with the Mediterranean since the time of Carthage and with the Upper Nile from a much earlier date, establishing avenues of communication and cultural influence that remained open until the end of the 19th century. By these same routes, Islam made its way south into West Africa after the 9th century AD. By the 11th century some Hausa states - such as Kano, Katsina, and Gobir had developed into walled towns engaging in trade, servicing caravans, and the manufacture of various goods (wikipedia.org).

The Hausa people are recognized as merchants and traders from their early days, this allows them to travel to very far places and also enable them to experience different environments. This provides the opportunity to adopt and assimilate many cultures and traditions throughout their trade routes some of which can be distinctly recognized from the very few existing traditional buildings in the Northern Nigeria.

2.1.6. *Building Materials*

The three well-defined materials that are prominent in the building traditions of Africans are; stone, straw, and earth which have been independently and jointly used and skillfully applied (Ejiga et al., 2012; Egenti et al., 2014) [24]. However, Danja et al., (2017), asserted that earth is the prominent building material in the VANN because it was easy to use and fix firmly to form the structure, it is also used as a binder when mixed with grass to form a composite material as it surrounds the grass to form a firm and rigid structure. It surely has been one of the most common and abundantly obtainable materials in Northern Nigeria and therefore became the most utilized material in traditional buildings. Thatch is another building material used by Various natives of Africa and Hausa people are not an exception, they use thatch which are traditionally waste materials because it is a dry stalk, left in their field after harvesting for construction and in mixing or binding with earth it forms a composite building material. It is also used as a roofing material in some areas of Northern Nigeria. The timber used by Hausa people is usually harvested from the locally available tree trunks mostly male palm tree (locally called *Daleb or Giginya*) and use them in roofing. They also use the ashes for insulation and water proofing on flat roofs.

The figures below show the pictorial (photos) representation of some Vernacular Architectural buildings in some cities within the Northern Nigeria.



Figure 2. Traditional Place entrances of Kano Emirate, Kano City, Kano State



Figure 3. Traditional Place entrance of Zazzau Emirate, Zaria - Kaduna State of Nigeria.



Figure 4. Traditional Place entrances of Katsina Emirate, Katsina State.



Figure 5. VANN Showing Engravings in Traditional buildings such as Places and Mosques



Figure 6. VANN; Showing Earthen Buildings in Northern Nigeria

3. Data Presentation and Analysis

3.1. Results from the Administered Questionnaires

The primary data for this research work was obtained through manually distributed questionnaires to the various construction project professionals practicing within the Northern Nigeria's built environment. These includes but not limited to: Architects, Quantity Surveyors, Civil Engineers, Project Managers and Construction Managers etc. The responses obtained are shown in the *table 1* below.

Table 1. Questionnaires distributed with responses. Source: Authors' 2017; Field work

Questionnaires	Frequency	Percentage
Returned and Usable	350	58.33%
Returned but Incomplete	29	4.83%
Non-Returned	221	36.83%
TOTAL	600	100%

The following can be deduced from the table above:

- i. 600 questionnaires were manually distributed and 379 questionnaires (representing 63.17%) were retrieved, while 221 (representing 36.83%) were not returned.
- ii. 350 questionnaires (representing 58.33%) were complete and usable whereas 29 questionnaires (representing 4.83%) were incomplete.
- iii. As such, the response rate was good.

Among the respondents were various construction project professionals practicing within the Northern Nigeria's built environment. These includes but not limited to: Architects, Quantity Surveyors, Civil Engineers, Project Managers, Construction Managers and others etc. The responses obtained by discipline is shown in the *table 2 below*.

Table 2. Respondents' Professional Disciplines. Source: Authors' 2017; Field work

S/N	PROFESSIONAL DISCIPLINES	No. Of Questionnaires Distributed	No. Of Questionnaires Returned and Usable	Percentage (%) of Questionnaires per discipline
1	Architects	100	72	20.6%
2	Quantity Surveyors	100	53	15.1%
3	Civil Engineers	100	51	14.6%
4	Project Managers	100	61	17.4%
5	Construction Managers	100	64	18.3%
6	Others (Mechanical and Electrical Engineers, Surveyors, Estate Managers and Building Engineers/Technologist etc.)	100	49	14.0%
TOTAL		600	350	100%

It can be deduced from the table above that: Architects have the highest response rate with 20.6%, followed by Construction managers with 18.3%, Project managers 17.4%, Quantity surveyors with 15.1%, Civil engineers with 14.6% while other professionals' (Mechanical and Electrical Engineers, Surveyors, Estate Managers etc.) have 14%. All together; the responses from Architects, Construction managers and Project managers accounts for more than half of the responses obtained (56.3%).

Table 3 below shows the assessment of the factors shaping VANN based on a 5-point Likert scale (Strongly Agree – 5; Agree – 4; Neutral / Undecided – 3; Dis-Agree – 2; Strongly Disagree – 1)

Table 3. An Assessment of the factors shaping VANN. Source: Authors' 2017

S/N	Factors Shaping Vernacular Architecture of Northern Nigeria	Strongly Agree	Agree	Neutral / Undecided	Dis-Agree	Strongly Dis-Agree	TOTAL	Mean Item Score
		5	4	3	2	1		
1	Socialization	209	134	5	2	0	350	4.57
2	Cultural Amalgamation	111	145	60	31	3	350	3.94
3	Borrowed Religious Practices	60	99	68	80	43	350	3.15
4	Exchange of Ideas	104	162	56	19	9	350	3.95
5	Trade (Sub Saharan trading)	87	116	89	29	29	350	3.58
6	Available Building Materials	135	162	27	22	4	350	4.15

The respective mean item score (weighted average) values were analyzed based on the range below to allow for a remark (from 4.5 – 5.0 is Strongly Agree; 3.5 – 4.4 is Agree; 2.5 – 3.4 is Neutral / Undecided; 1.5- 2.4 is Dis-Agree; 0.5 – 1.4 is Strongly Dis-Agree) for each of the identified Factors Shaping Vernacular Architecture of Northern Nigeria as shown below:

Table 4. Remark and Ranking of the Factors Shaping Vernacular Architecture of Northern Nigeria. Source: Authors' Field work.

S/N	Factors Shaping Vernacular Architecture of Northern Nigeria	Mean Item Score	Remark	Ranking
1	Socialization	4.57	Strongly Agreed	1st
2	Cultural Amalgamation	3.94	Agreed	4th
3	Borrowed Religious Practices	3.15	Neutral	6th
4	Exchange of Ideas	3.95	Agreed	3rd
5	Trade (Sub Saharan trading)	3.58	Agreed	5th
6	Available Building Materials	4.15	Agreed	2nd

From the above table, the following deductions were made regarding Factors Shaping Vernacular Architecture of Northern Nigeria:

- i. One of the factors was Strongly Agreed,
- ii. Four of the factors were Agreed,
- iii. Also, one of the factors was deemed Neutral / undecided by the respondents

The respondents strongly agreed with only Socialization as the major factor shaping VANN; while also agreeing with four factors namely: cultural amalgamation, exchange of ideas, Sub-Saharan trade and available building materials, whereas the respondents remained neutral / undecided on one of the identified factors which is borrowed religious practices. This clearly indicates that 5 of the 6 identified factors really helped in shaping VANN while one factor may also or somehow shaped VANN.

Socialization which allows the Hausa-Fulani people to integrate and adopt many building styles from their neighboring countries was ranked first. This is due to the existence of some intricate and elaborate arabesque engraving

symbols carved in to the building facades in traditional buildings found in Northern Nigeria which were adopted through socializing with neighboring countries. Availability of building materials was ranked second. This is due to the fact that most of the Vernacular Architecture of Northern Nigeria is made from earth which is the most common and abundantly obtainable building material and the most utilized in construction processes within Northern Nigeria.

Exchange of ideas was ranked Third; these ranges from their daily life routines down to their building designs which have special aura around them and are of various shape and sizes as perceived by the respondents. Cultural amalgamation ranked fourth; This factor is due to trans-Saharan caravan trade which allows them to assimilate and or absorb some cultures from some of the ancient cities such as Gao and Timbuktu in the ancient Mali empire.

Sub-Saharan trade was the factor ranked Fifth; This is due to the fact that the Hausa-Fulani people are mostly merchants from their early days and travel throughout Africa, Middle East by trading along the traditional pilgrimage “Hajj” route and also the Mediterranean part of Europe. Borrowed religious practices was ranked Sixth and last by the respondents. These clearly indicates that this factor is the least shaping VANN. It also indicates that through Socialization, Exchange of ideas and Cultural amalgamation, the religious factor is ingrained in them, thereby minimizing its impact on shaping the VANN. Hence, it is ranked least and considered as Neutral / Undecided by the respondents.

3.2. Testing of Hypotheses

The hypotheses formulated for this research work was tested using T-test statistics. The values of the mean item scores in table 3 and 4 above were used as the data for the statistical computations with the result shown in the table below.

Table 5. Testing of Hypotheses. Source: Authors’ 2017; Statistical computations

Factors Shaping VANN	Mean	Standard Deviation	Standard Error	N	Degree of Freedom	Alpha (level of Significance)	Pvalue	Tcal	Ttab _{0.05, 5}
Six Identified Factors	3.890	0.4858	0.1983	6	5	5%	0.0005	7.0092	-2.0150

From the hypotheses computation in the table above it can be deduced that; With 5- degrees of freedom (DF) and 5% level of significance, the T-test calculated (Tcal =7.0092) is greater than T-test tabulated (Ttab_{0.05, 14} = -2.0150) then as such, the Alternative hypothesis was accepted; which states that; Vernacular Architecture of Northern Nigeria *is* significantly shaped by some selected factors.

4. Conclusions

This research work identified six factors shaping VANN based on the reviewed literature, which forms the main body of the questionnaire distributed to various construction project professionals practicing within the Northern Nigeria’s built environment. These include: Architects, Quantity Surveyors, Civil Engineers, Project Managers, Construction Managers and Others (Mechanical and Electrical Engineers, Surveyors, Estate Managers and Building Engineers/Technologist etc.). 600 number of questionnaires were manually distributed and 350 questionnaires (representing 58.33%) were complete and usable whereas 29 questionnaires (representing 4.83%) were incomplete, while 221 (representing 36.83%) were not returned. As such, the response rate was good. Among the respondents, Architects have the highest response rate with 20.6%, followed by Construction managers with 18.3%, Project managers 17.4%, Quantity surveyors with 15.1%, Civil engineers with 14.6% while other professionals’ (Mechanical and Electrical Engineers, Surveyors, Estate Managers etc.) have 14%.

The respondents also strongly agreed with only Socialization as the major factor shaping VANN; while also agreeing with four factors namely: cultural amalgamation, exchange of ideas, Sub-Saharan trade and available building materials, whereas the respondents remained neutral / undecided on one of the identified factors which is

borrowed religious practices. This clearly indicates that 5 of the 6 identified factors really helped in shaping VANN while one factor (Borrowed religious Practices) may also or somehow shaped VANN.

5. Recommendations

The following recommendations were proffered:

- i. There is need for extensive research work on the Vernacular Architecture of Northern Nigeria by the indigenous scholars especially on the Historical aspects of the ancient and traditional buildings. These may open up some interesting indigenous aspects of the VANN
- ii. There is also need for further extensive studies to examine the impact of each of the factors identified in this study on How it shapes Vernacular Architecture.
- iii. Further research work may be needed to identify and evaluate more factors shaping VANN.

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