

Original Article

The Development of Architecture in Kaduna City, Nigeria, From 1960 to 2020

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Abstract - This article defines the relationship between the evolutionary process of the city of Kaduna over the last 50 years and the development of its Architecture. It describes the character of its architecture and identifies the factors responsible for its growth and development, highlighting the contributions made by architects and architectural firms to the development of architecture and the evolution of architectural form. A stratified purposeful sampling approach was chosen to select the target population. The population of interest were professionals in the field of architecture who identified the characteristics of the architecture of Kaduna City and the factors that have affected their perception of the changes in the architecture of Kaduna City. Semi-structured interviews, questionnaire surveys and pictorial surveys were chosen as data collection methods. From the results, the development of the architecture of Kaduna City could be traced to multiple factors: economic indices, government policies, culture and religion. The economic prosperity in the 1980s led to more diversified styles while religious crises created a new conservative elitist where buildings tended to embrace modern elitist characters but with religious inflexions for identity. Culture and religion drove the desire to reflect symbolism and relevance in design. Government policies such as those of urban planning and development control have compelled architects to conform to standards that guarantee minimum quality.

Keywords - Architects, Architectural firms, Architectural forms, Growth and development, Kaduna architecture.

1. Introduction

Cities develop due to various factors, including social, political, military, mythological, and religious reasons. Preindustrial cities evolved through consolidating political power and using complex religious and government structures (Mabogunje, 1980). Recently, new indices have influenced city development related to political power, economics, social factors, and demographics, leading to transformations in cities, demographic profiles, and environmental characteristics, including architecture. In Nigeria, precolonial cities evolved through Trans-Saharan and Trans-Atlantic trades. Omuta (1986) identified three key factors responsible for city growth during the colonial era in Nigeria: colonial administrative policies, exploration, commodity exports, and the railway system. These factors influenced the concentration of political power and the development of commercial cities and ports. Simon (1989) supported this argument, describing colonial cities as centers of political, military, and economic dominance and exploitation. Kaduna serves as a prime example of a colonial city, reflecting the nature and essence of the colonial system. It developed along British colonial residential segregation policies in Northern Nigeria, significantly impacting contemporary social and ethnic relations.

In addition, Kaduna served as an administrative headquarters, a military garrison city, and a transit point for railways, facilitating the movement of commodities and people across the country. The architecture of Kaduna City has been extensively documented in numerous scholarly articles offering valuable insights into various aspects of its development, with notable contributions such as the study conducted by Mohammed et al. (2018).

However, there remains a significant gap in the literature regarding the fundamental processes shaping the city's distinctive architectural style and character. Understanding the relationship between the city's architectural evolution and the development of its architectural style is paramount for preserving its cultural heritage, informing urban planning strategies and serving as a case study for understanding broader trends and patterns in urban development and architectural evolution across Nigeria.

1.1. Aim and Objectives

This study aims to identify the relationship between the evolutionary process of Kaduna city and the development of its architecture. The main objectives are to describe the character of its architecture, identify the factors responsible



for its growth and development and highlight the contributions made by architects and architectural firms. This is done through literature surveys, questionnaires, pictorial surveys and in-depth interviews.

1.2. Hypotheses

H₀: There is no significant relationship between the evolutionary process (variables) and the architectural development of Kaduna city.

H₁: There is a significant relationship between the evolutionary process (variables) and the architectural development of Kaduna city.

2. Literature Review

2.1. Evolution of Modern Nigerian Architecture

The indigenous tropical design movement established a significant presence in 1953, spearheaded by Adedokun Adeyemi, who organized a pivotal conference on tropical architecture. Adeyemi, along with two other architects, co-founded the Nigerian Institute of Architects in 1960 (Ola-Adisa et al., 2013). Early architects within this movement aimed to harness contemporary technologies to address climatic challenges innovatively. Their objective was to create architecture that was sustainable in function, incorporating elements such as sun shading devices. This approach facilitated a transition from colonial architecture, which was characterized by overhanging eaves in southern public buildings and parapets in the north, towards a more unified architectural style.

Moreover, it solidified modernism's viability as an architectural movement in Nigeria, allowing the profession to emerge from the dominance of colonial public works department engineers (Ola-Adisa et al., 2013). The 1970s and 1980s, marked by the oil boom and a return to political activity, were golden years for architectural practice in Nigeria, dominated by locally trained architects. However, military interventions and economic downturns significantly impacted the sustainability of architectural practice. The close relationship between the Nigerian economy, the construction industry, and the housing market greatly influenced the architectural profession's fortunes.

During recessions, architectural practices struggled due to fewer new commissions, slower project execution by major clients, and increased competition, which led to redundancies among staff hired in the 1970s and 1980s. Remuneration became highly competitive, and many firms accepted small, less desirable commissions to survive until economic conditions improved (Ola-Adisa et al., 2013). The mid-2000s witnessed a significant rise in construction project demand, spurred by an extended period of low-interest rates that invigorated the global property market. These favourable economic conditions prompted architectural firms to expand their workforce to manage the growing volume of work. Despite this, the construction industry remained fiercely

competitive, with clients insisting on maintaining existing remuneration structures. In addition, the prevalence of major construction firms offering comprehensive 'design and build' packages further diminished the number of projects available to architects and heightened competitive pressures (Ola-Adisa et al., 2013; Santander Business Guides, 2014; Sagada, 2002). As the late 2000s approached, the demand for architectural services sharply declined, with numerous firms experiencing revenue reductions of approximately twenty-five percent. The property market struggled throughout the 2010s, largely due to a significant economic downturn and challenges within the construction sector (Ola-Adisa et al., 2013; Baker, 2010). Moreover, large segments of the grassroots market, especially in residential and small-scale developments within rural and suburban communities, were increasingly captured by architectural technologists or unlicensed practitioners. This shift contributed to the degradation of contemporary Nigerian architecture. Figure 1 illustrates the progression of architectural styles in Nigeria, categorizing the evolution across four generational stages: First Generation architects (1950s to 1960s), Second Generation architects (1970s to 1980s), Third Generation architects (1990s), and Fourth Generation architects (2000 to the present). Current architectural practices involve styles categorized as Future Trend, Eco Trend, Neo Traditional Style, and New Classical Style.

2.2. The Role of Architecture in Forming City Identity

The identity of a city emerges from the characteristics of its societies, reflecting the local culture of its inhabitants as well as the natural features of the city. The historical background of the city evolves with each passing era, contributing to its distinctive identity. The built environment, comprising streets, squares, and buildings, represents the interaction between people and their surroundings; thus, any alteration in this fabric signifies or even leads to changes in the lives of the people. Suppose architecture is viewed as a reflection of the social, political, and economic conditions of a society. In that case, analyzing the architecture of any period can provide insights into the circumstances prevailing at the time of its creation (Adam, 2012).

Architecture fundamentally embodies two main aspects: form and function. However, when people encounter any architectural work, the form and visual details are what initially captivate their attention, leading to either approval or rejection. Thus, visual perception becomes a critical element of architectural critique, as people evaluate a building's form, materials, and colors before experiencing its function (Elessawy et al., 1960). According to Lynch (1960), the environmental image comprises three core elements: identity, structure, and meaning, which invariably coexist. Identity can be discerned when an object possesses distinctive features that set it apart from others. Structure denotes the connections between objects, and it must hold sentimental value and emotional significance for the observer.

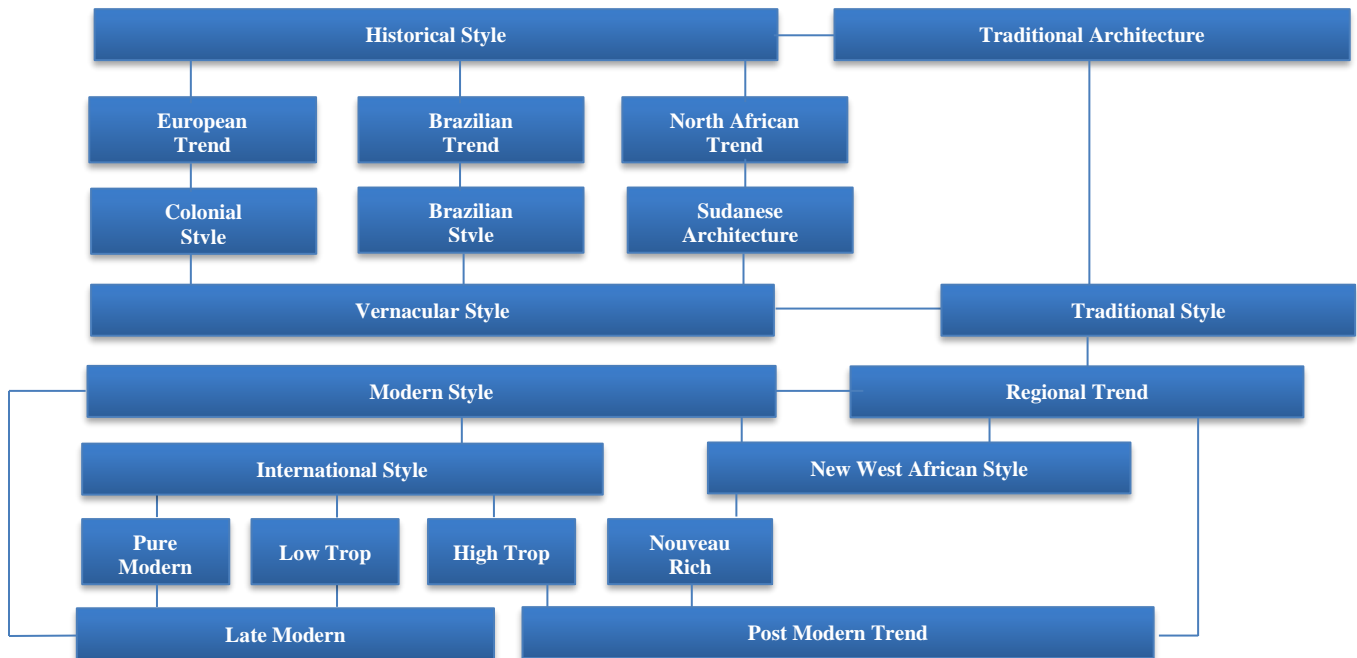


Fig. 1 Evolution of Nigerian architecture

Source: Gofwen (2018)

2.3. The Role of Architecture on the Growth of Nigerian Cities

Urbanization in Nigeria has deep historical roots that precede British colonial rule. According to available data from early explorers, missionaries, and merchants, as compiled by Mabogunje (1968), significant urban settlements existed in Nigeria during the nineteenth century. The British colonial administration classified Nigerian towns under the Township Ordinance into three categories.

Lagos, being the capital, was the sole first-class town, while eighteen others were designated as second-class, and twelve fell into the third class. This classification influenced colonial investment decisions in infrastructure. The impact of colonial administration on Nigerian urbanization is evident in the structural changes it introduced to cities. The colonial regime implemented western planning traditions, exemplified by the creation of Government Reservation Areas (GRAs), which were developed alongside traditional residential neighborhoods. Since gaining independence in 1960 until the early 1990s, Nigerian architecture has not adhered to any specific architectural movements or styles defined by distinct eras. The country's construction and architectural development continued to be shaped by colonial legacies and various global influences. Notably, the architecture of functional buildings such as churches, mosques, hospitals, schools, and various commercial and institutional structures reflected this diverse influence.

Unlike other regions where 'design movements' are formally recognized and integrated into academic curricula, Nigeria's design education did not initially embrace these

movements. However, contemporary Nigerian designers have progressively blended traditional local aesthetics with modern construction techniques and materials. This blending has fueled an ongoing quest among local architects to establish a distinct 'Nigerian Architecture' that not only reflects the nation's cultural identity but also meets international standards. In this evolutionary process, many of Nigeria's contemporary architects have inadvertently aligned their designs with modern and postmodern architectural principles. Through extensive education, training, and practice, a new wave of Nigerian architecture has emerged, characterized by the construction of sophisticated multi-million naira projects. These developments not only celebrate Nigeria's rich cultural heritage but also reshape urban landscapes, reflecting the impacts of globalization and international styles (Enwerekowe, 2011).

2.4. The Impact of Architecture on Kaduna City

Kaduna City is located in the northern part of Nigeria. It is the third most populous state in Nigeria, with a population of 6,066,562 in 2009. It was established as the capital city of Northern Nigeria in 1917 after earlier searches for a suitable administrative capital in Lokoja, Jebba and Zungeru. Some of the legacies of northern Nigeria in Kaduna include Lugard Hall, Arewa House, Ahmadu Bello University, Hamdala Hotel, Gamji Park and the Lugard House, State Secretariat Complex, Railway station and the Customary Court. Many northern elites live in Kaduna (Akpan, 2019). Kaduna has grown into an important industrial center, second only to Kano in commercial significance (Oyedele, 1987). Over the years, the city has experienced waves of immigration, serving as the capital under different political structures:

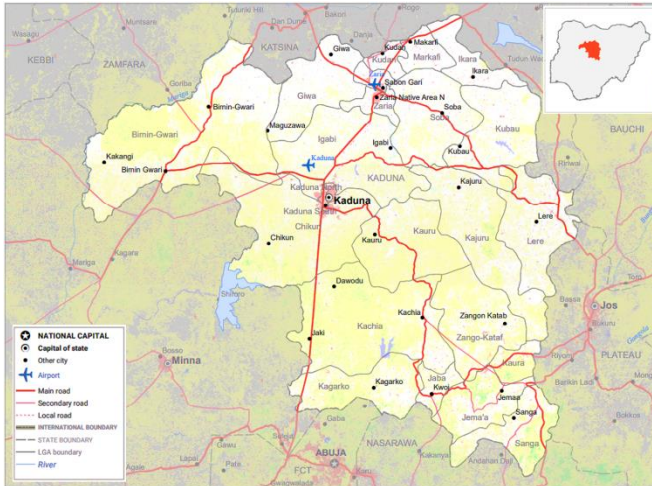


Fig. 2 Map of Kaduna State, Nigeria

Source: Ministry of Land and Survey, Kaduna State.

The defunct Northern Nigerian Protectorate (1917-1957), the Northern Nigerian Regional Government (1957-1967), the North-Central State (1967-1975), the old Kaduna State (1975-1987), and now the modern Kaduna State (1987 to date) (See Figure 2).

This is, however, not within the context of the colonialist assertion that it was established in a “virgin” land or a “no man’s land”, although traces of colonial decisions are visible in the current location, settlement pattern and purpose of the city. It is most likely that the name is derived from the Gbagyi term *Kadudna*, meaning ‘across the river of snails.’ The general impression that the town derived its name from the Hausa term *Kadduna* is contained in the various existing literature where it has been successfully projected and made popular (Gervis, 1963; Oyedele, 1987; Paden, 1986; Udo, 1970). It is observed, however, that the presence of crocodiles in the quantity they were said to have existed in river Kaduna appears rather not as plausible as the environmental factor to support the argument that the name was derived from the prevalence of crocodiles in the river.

It is equally important to note that there is sufficient evidence in support of the Gbagyi people, having undoubtedly settled in the Kaduna area before any other ethnic community since the 14th century, which is hardly in doubt. It is, therefore, more logical and agreeable that their naming of *Kadudna* for that area they lived in for a long must have been affected by the pronunciations of later communities who referred to it as Kaduna. That is to say, the Gbagyi’s *Kadudna*, compared to the Hausa *Kadduna* must have long been in use among the Gbagyi of the Kaduna area to refer to their habitat prior to their ‘hosting’ of later communities, a more recent development when compared with the 14th century habitation of the area by the former. Kaduna, according to Oyedele 1987, first developed in a dual capacity as a garrison town and the capital city of northern Nigeria. These functions, to some extent,

defined the pattern of growth of the city and its contemporary character and dynamics. The Lugard Hall in the city's center served as the center of power for colonial Kaduna. The colonial residential neighborhoods and Lugard Hall were built on sizable pieces of land that were surrounded by gardens and trees, and the road layouts were carefully planned (See Figure 3) and located near recreational and other service activity areas (Bununu, Ludin, & Hosni, 2015). Migrants into Kaduna were settled in areas they were assigned according to the colonial spatial organization: the Tudun Wada, Sabon Gari and other satellite village settlements. Tudun Wada, initially known as Unguwar Lebura or Yelwa, was demarcated for labourers of Northern Nigerian origin. The colonial government, in pursuance of its segregation policy, as defined in its Township Ordinance of 1917, aimed to prevent the native population from spreading malaria and other diseases to the Europeans, decided to move Northern Nigerians living in Sabon Gari to Tudun Wada.

Most of these Northerners refused to move. For economic reasons, Tudun Wada attracted a lot of non-northern Nigerian settlers. For instance, in 1926-27, a large ground of artisans and petty traders left Sabon Gari for Tudun Wada (Oyedele 1987). This trend dislocated the ethnic, class and religious basis of the colonial segregation policy. It is this development that shapes the contemporary character of ethno-religious violence in Kaduna. Kaduna, like other urban settlements, has in recent times been experiencing a serious influx of people from different parts of the country and beyond. The increasing economic crisis in the country has combined to transform many hitherto obscure identities into popular, vibrant (particularly ethnic and religious) cleavages, resulting in repeated ethno-religious violence since the 1980s. From the preceding, Kaduna has enjoyed tremendous development in all ramifications at various times and indeed in the last seven years. An example can be seen in Figure 4, where the Leventis roundabout has been converted to a flyover and underpass, seen in Figure 5.



Fig. 3 Colonial city of Kaduna before 1960

Source: Google (1918)



Fig. 4 Leventis Round-About, Kaduna

Source: nigeriacities.blogspot.com (2018)



Fig. 6 Lugard Hall building showing dome and pinnacle

Source: [Mrsoundoro](#) (2020)



Fig. 5 Leventis underpass, Kaduna

Source: [AutoJosh](#) (2021)



Fig. 7 Kaduna North Local Government Secretariat

Source: [Sabo](#) (2022)

2.5. Architectural Development in Kaduna in the Last 50 Years

The development of architecture in Kaduna over the last fifty years is closely related to the evolution of Kaduna from being the administrative capital of Northern Nigeria to being its political capital while actively serving as a commercial center next to Kano. This transformation from traditional to modern and the tropical influence can be seen below in the Lugard Hall. Lugard Hall was constructed in 1908. Various additions, including the sub-dome, were added to the north façade by 1956, combining elements of traditional Hausa architecture such as the dome (tulluwa) (See Figure 6) and pinnacle (zanko) and neoclassicism (Zahra, 2020). The pinnacle is an element often repeated in some public buildings in Kaduna, such as the Kaduna North secretariat building, as seen below (See Figure 7).

Architecture is closely related to the development of cities and nations from the period of antiquity to modern societies. It is possible to relate architectural characteristics to society. Thus, Egyptian Architecture in the pre-classical period was characterized by the peristyle, while Greek architecture was identified with column types such as Doric, the Acropolis and Roman Architecture with the Pantheon (Cruickshank, 1996).

The neo-classical periods were no exception. Georgian and Victorian architecture were easily identified with British architectural experience in the eighteenth and nineteenth centuries. The Contestation between Greek and Roman scholars such as Winkelmann and G.B. Piranesi as to which architecture currently describes the state of society in the neo-classical period reinforces the connection between architecture and society.

In Nigeria, two important factors have influenced the development of architecture. They are the Arab invasions from North Africa for trade, the spread of the Islamic faith between the 7th and the 11th centuries and the European penetration from the coastal areas between the 15th and 20th centuries (Osasona & Hyland 2006). The influence of North African architectural styles transcended mere aesthetics, impacting both the design and construction techniques of houses in the region.

This influence is evident in the shift from cylindrical huts to rectangular or square structures adorned with ornamented walls, particularly in the residences of the aristocracy. The adoption of simple construction methods like vaults and domes also became prevalent. Notably, monumental structures like the Gobarau Minaret, dating back to the 15th century, showcased the early emergence of multi-storey buildings in the region. Meanwhile, in the southern part of Nigeria, the influence of Portuguese sailors and Brazilian slaves, was felt in the construction of houses which had fluted walls, porticos or wide terraces, sculptures baluster and heaped roofs.

2.5.1. Colonial Influence

Colonial rule had a decisive impact on the development of architecture in Nigeria from the early 19th Century. The amalgamation of the Northern and Southern protectorates facilitated the free movement of colonialists between the North and Southern parts. They built structures, both public and residential, largely using the Victorian Style of architecture, which had deep-pitched roofs and deep porticos, as shown in Figure 8.

The civic buildings had arches, cornices, quoins, wooden and concrete balustrades (Fig. 9), and pediments (Fig. 10), as could be seen in office buildings, servants' quarters and railway buildings. Thus, the physical environment changed in the cities where the colonialists lived.



Fig. 8 Kaduna state ministry of women affairs building
Source: Ryal-Net, Prucnal-Ogunsote & Ola-Adisa (2019)



Fig. 9 Quoins at Kaduna prison
Source: Ezeamalu (2013)



Fig. 10 Pediment and entablatures on the front façade of Kaduna Prison
Source: Alabi (2020)

Other factors that influenced architectural development include the attempt to tropicalize architecture in the middle of the 20th century and the Euro-centric training of architecture in the foremost institutions of architecture in Nigeria. Also, the response to the evolution of modern architecture played a significant role in shaping Nigerian architecture especially in the last 50 years. Nevertheless, in the northern part of Nigeria, the need to recover the valuable parts of traditional architecture while maintaining sensitivity to modernism and tropicalization played a great role. Some identified characteristics include multiple pitched roofs often seen on a single building, dorm windows, balconies and terraces. Institutional and commercial buildings evolved from simple rectangular blocks to multiple blocks around courtyards. The roofs became flat, and sometimes hidden, narrow columns defined walkways as a basic rhythm. Later, glass interstices were used along the walkways. The response to tropicalization influenced the use of buttresses, window hoods or fins, cantilever roofs and the use of rough textures and bricks on the external walls. In the last 20 years, there appears to have been a convergence of expressions between residential and institutional buildings seen in parts of Kaduna City. Hence, common features are seen in institutional as well as residential architecture.

The designation of Kaduna as the capital of Northern Nigeria in 1917 by Lord Lugard increased planning activities and construction of the military as well as administration/infrastructure. The colonial government encouraged the segregation of the city into township sections such as European/Government Reservation Area (ERA/GRA), Sabon Gari and Tudun Wada, where the clerks lived, and the peripheral villages (Akpan, 2019). The ERA/GRAs naturally were the houses of Colonial residential architecture. Meanwhile, civic colonial architecture was developed as railway infrastructure, military courts, hospitals, and offices and climaxed in the construction of the parliament building known as Lord Lugard Hall in 1948 which was later expanded in the 60s.

With the development of roads and public infrastructure, the population of Kaduna began to improve; besides, there were opportunities for employment in the textile factories in the 60s, which attracted a large population from various parts of Nigeria. Soon, township areas such as Sabon Gari, Tudun Wada and Kakuri became for the lower class that provided menial services. Whereas Doka, Ungwar Rimi attracted a large population of middle level settlers from various parts of Nigeria and West Africa. The construction of housing estates such as Marafa and Costain in the 60s cultivated middle-class settlements. Meanwhile, colonial architecture, as could be seen in other public institutions such as the Central Prison and State Secretariat, exhibited classical and cultural elements such as roof pediments, cappings, cappings and arche ways, columns and beams, and sometimes with well-defined entablatures. By 1970, Kaduna had a population of 211,000 as opposed to 190,000 in 1968 and was fully grown as a city. Max Locks had drawn an elaborate town planning scheme in (1967) which had become the operational basis of planning. The creation of Kaduna State from the northern region in 1967 increased the pace of infrastructural development, leading to the emergence of key buildings such as the Ahmed Talib house, a multi-storey building named 'Ten storeys' in 1975 (Figure 11).



Fig. 11 Ahmed Talib House (Ten storey)

Source: Zakawanu (2019)

Commercial buildings such as the Leventis Building, Challerams and Kingsway were built in the 70s by multinational companies to accommodate the booming economic activities that followed the civil war. Others were the CFAO UTC and Geottschalk Buildings, all located strategically along Ahmadu Bello Way. Meanwhile, patches of notable buildings began to appear in other township areas. Kaduna Polytechnic (College of Science and Technology) received a face lift with new faculty buildings, and later in the 80s, the Chase Building, Savannah Building, and the famous Ship Yard Building. Residential architecture continued to evolve through prominent architectural firms such as Archcon Nig. Ltd., Niger Consultants and Habitat Associates. Kaduna City took center stage in providing architectural reformation that combined the effective use of brick, concrete rough textures, and different roof combinations while remaining responsive to modernism. The typical residential building in Kaduna in the 1970s and 1980s had the same form, usually rectangular and used similar materials (Figure 12).

The religious crises that engulfed Kaduna in 1987, 1992, and 2011, among others, affected settlement patterns remarkably. Particularly, it further segregated the township areas according to tribal and religious divisions. However, the consequences of the crises included a dearth of residential accommodation and the need to provide some urgently. Overtime, this created a unifying response to residential architecture by the middle class. A typical house would have 2 floors, with deep multi-leveled roofs constructed of tiles and depending on the location, some details differ, as seen in Figure 13.



Fig. 12 Typical architectural form in the 1970s and 1980s in Kaduna

Source: Field Survey (2023)



Fig. 13 Multi-level roof in a residential building in Ungwan Dosa, Kaduna

Source: Ndandok (2022)

In the northern part of the city, details might include arches, balconies, colored tiles for external furnishing, and narrow windows (to emphasize privacy), while the floor plans have clearly defined anterooms and multiple living rooms. In the southern part, the arches are replaced with beams and columns, with glass balusters, wider windows, and mild exterior color finishes. However, most of these houses are built with elaborate external hard paving and green landscaping.

In terms of commercial and institutional architecture, the response was generally similar, irrespective of location within the city. The building forms in Kaduna North have started adopting the use of parapets and glass walls, which are a modern replica of the buildings constructed in the 70s, as seen in a comparison between the buildings in Kaduna North in Figures 14 and 15 and Kaduna South in Figures 16 and 17.

These may have been because the demographic changes that followed the religious crises had altered the settlements to the extent that it was no longer the pre-colonial elites versus people with low incomes, but religious and tribal divisions in which case elites/middle class could be found in any part of the city.



Fig. 14 Plaza opposite murtala square, Kaduna north

Source: Field survey (2023)



Fig. 15 Letco building on Ahmad Belloway, Kaduna north

Source: Field Survey (2023)



Fig. 16 Commercial complex in Kaduna South, Sabo

Source: Field survey (2023)



Fig. 17 Sabo market, Kaduna south

Source: Field survey (2023)

3. Theoretical Framework

Buildings have been classified by many things, including their function, the architect's response to user needs, structural systems, mechanical systems, historical style, form and green rating (Steadman, 2000; Sun, 2022). Understanding what makes one building different from another can be done by categorizing buildings based on their form (Ibrahim, 1997). Rudolph (1956) theorized that there are six determinants of architectural form – the environment of the building, functional aspect, particular region, climate, landscape and natural lighting conditions, particular materials, psychological demands of the space and spirit of times.

This theory, as (Ledford, 2014) explained it, caters to the things users can relate to because space is shaped in a way that will have an impact on the psyche of its users. Gelernter (1995) further expanded the concepts of determinants of form to include the three traditional theories of creation, which are classicism, romanticism and positivism. Classicism's influence on architectural form is through reason, clarity, logic and respect for tradition: romanticism through the individual

ability of the designer and positivism through replication of pre-existing organic forms. These theories identify with periods of history where behaviour and thought were all-encompassing and thus influenced every facet of the social and physical environment, having clear characteristics which made buildings designed in these periods easily identified. The identification of form played an important role in describing buildings that were studied.

The recognition by components theory by Irving Biederman (1987) favours grouping objects by recognizable characteristics. It postulated that objects are recognizable by separating them into the object's component parts or geons. This theory is good for classification because geons are distinct from each other and can be used to describe an object from whatever perspective it is looked at, and geons can also be combined to define an object or class. The study relied on the above building characteristics that were studied. This supports building classifications because building characteristics are often a mixture of distinct forms derived from different architectural periods, cultures, material combinations and environments.

However, due to the fact that there are cross-overs between culture, materials and architectural periods, the theory may not always address these cross-overs satisfactorily. The Gestalt theory of perception has often been linked to the perception of architectural form. Typically, the term 'perception organization' refers to issues with how visual information is organized into qualitatively separate pieces over time and space during the perception process, as well as how that organization affects the visual characteristics of observers' experience.

The theory's roots can be found in Austria and Germany, where it was developed in opposition to structuralism by stressing the importance of organization or grouping in visual perception. Perception grouping examines how the visual system determines what regions of an image belong together as objects (Brooks, 2015). Some authors argue that the speculative nature of perception makes an organization depend on the users' purpose and experience. The recognition by components theory will aid in identifying the visual characteristics of the forms that are prominent in the study area. The determinants of form and gestalt theory will further aid in grouping these forms based on external influences and perceptions of the designers.

4. Materials and Methods

The research methodology employed was a combination of qualitative and quantitative research methods to collect information on the main objectives of the study, which were to describe the character of the architecture of Kaduna City, identify the factors responsible for its growth and development and highlight the contributions made by architects and architectural firms.

4.1. Research Design

This study adopted a mixed-method research design, integrating archival/historical research with a field survey to examine the development of architecture in Kaduna City, Nigeria, from 1960 to 2020. The combination of qualitative and quantitative approaches provided a detailed understanding of architectural transformations over six decades.

The archival/historical research component involved the systematic collection and analysis of historical records, documents, and other historical materials. Key data sources included government archives, architectural drawings and records from architectural firms and professional bodies, and resources from libraries and museums.

Newspaper archives and private collections from architects, historians, and building professionals were also extensively reviewed. Data collection methods involved the review and analysis of historical documents, the examination of archival photographs to study changes in architectural styles and urban morphology, and the content analysis of periodicals and other written records to understand public discourse on the architecture of Kaduna City.

The survey research component gathered primary data through field surveys, oral interviews, and structured questionnaires. The target population of the study comprised architects, professionals in the building industry, residents and government officials in Kaduna City.

The research extensively analyzed the architectural development in Kaduna City, Nigeria, from 1960 to 2020, achieving results that surpass previously reported studies and contemporary methodologies adopted. Multiple factors contributed to these enhanced outcomes. Spanning six decades, the study allowed for a comprehensive examination of architectural trends, influences, and transformations over a prolonged period, unlike earlier studies that often focused on more limited time frames. Utilizing a comprehensive collection of archival sources, including government documents, historical records, and architectural data, resulting in a rich and detailed outcome. This extensive data collection facilitated the identification of patterns and transformations in architectural practices that had previously been undocumented. Moreover, integrating oral histories from building professionals and residents of the city added significant qualitative depth, providing knowledge into the socio-cultural and economic factors driving architectural changes, which were not captured in previous quantitative analyses.

4.2. Sampling Technique

A stratified purposive sampling approach was adopted in this study due to the small sample size that is strata from a larger population which could provide knowledge and experience in the subject being investigated. In order to

describe the character of Kaduna architecture, the evolution of Architectural form over the past 50 years needed to be documented, thus the first population of interest are professionals in the field of architecture.

Therefore, to ensure a comprehensive understanding of the architectural landscape in Kaduna, the population was divided into two distinct strata. The first stratum comprised architects residing within the urban areas of Kaduna, who could provide valuable information regarding the classification and character of buildings within Kaduna Town. This subgroup was particularly relevant as their expertise and professional insights were crucial for the study's objectives. To identify potential participants for the study, architects were selected from the register of architects based in Kaduna, which was provided by the Architects Registration Council of Nigeria (ARCON). This register served as a reliable source for identifying qualified architects actively engaged in the field. The sampling process considered various factors to ensure a representative sample. Specifically, considerations were given to gender, age/experience, and the classification of buildings erected within ten years.

By incorporating these factors, the study aimed to capture diverse perspectives and experiences within the selected sample, enhancing the richness and depth of the data collected. From a population of 300, 60 architects were identified who fit all the criteria outlined for the study. Questionnaires from 39 architects were returned. This corresponded to the Krejcie & Morgan (1970) table for determining sample size. Overall, the adoption of a stratified purposeful sampling approach allowed for a targeted selection of participants who possessed specific knowledge and experience relevant to the research objectives.

To determine the proportion to sample from each stratum and thus the required population size for each stratum, the number of strata and the proportion of individuals chosen for sampling from each stratum was considered based on the proportion of individuals from the previous stratum, the required population size for the other 2 stratum was calculated using the Neyman allocation, an approach commonly used in stratified sampling (Lohr, 2019; Fahimi & Scott, 2019; Heeringa, West & Berglund, 2017). The formula for Population size = (Sample size / Proportion of sample from each stratum).

The second population of interest was non-architects who are affiliated with the construction industry. The population was selected based on recommendations from architects from the previous strata; 30 names were given. This stratum was divided into age, tribe and location of residence within Kaduna town. Based on the formula above, a sample size of 25 was considered, which comprised a population of 10 other professionals and 15 non-professionals who had something to do with the construction industry. The data collection method

used was interviewed. The interviews were conducted as discussions around themes synthesized from literature and the data collected from the professionals. The questions were not completely fixed but were adapted according to how the conversations developed, according to the opinion of Munn & Drever (1989). The interviews conducted for both the professionals and non-professionals were transcribed and written down to allow for analysis of the material. A thematic analysis was performed on the data collected (Braun et al., 2017). This was aimed at identifying patterns within the data interview transcripts that had been collected so that they could be correlated to the more structured classifications identified from the more structured surveys.

The population for the third stratum was compiled from names received from the 12 wards in Kaduna North and the 13 wards in Kaduna South. Due to the increase in the number of wards over the years, the names received were significantly less than the number of wards. A total of 19 names were received, 16 of whom were still accessible. The population was carefully selected based on their participation in the design of buildings in Kaduna, their time of stay in Kaduna and their involvement with government policy. Eventually, 14 people were interviewed; while this did not fall in with Neyman's allocation formula, a margin of error of 2 was allowed. Some of the interviews were recorded, and others were recorded manually using the methodological guide suggested by various researchers (Young et al., 2018). The questions centered on the extent and ways in which government policies had influenced the architecture of Kaduna City and their personal view of architecture in Kaduna City.

4.3. Data Collection Instruments

4.3.1. Quantitative Survey Instrument (Questionnaire)

An online questionnaire survey was used, which centered on the identification of the characteristics of architecture and factors that have affected their perception of changes in the architecture of Kaduna. Though the average online survey response rate is 44.1%, a return rate of 60% was recorded. The higher percentage of the response rate was attributed to the short length of the questionnaire and the closed group of respondents (Menon & Mulaleehuran, 2020).

4.3.2. Qualitative Survey Instruments (Semi-structured Interview and Pictorial Survey)

The authors conducted semi-structured interviews and field surveys in the form of photography of prominent buildings located along major arterial roads in the city and the characteristics of each building were described accordingly and compared with findings from the questionnaires. Buildings used for the study were also identified based on literature as having been built within ten years of the period under study (1960 to 2020). This was so that the colonial and traditional characteristics identified in literature could be visualized so as to provide a base line for an image analysis

between changes in form and character and influences from the previous era on the current form and character of the buildings (Christmann 2008). Pictures were retrieved from old news articles and journals, photographs taken by the authors and photographs received from some of the interviewed population.

4.4. Method of Data Analysis

The collected data was analyzed, focusing on the evolution, character and form of the architecture of Kaduna City, and also identifying the factors responsible for its growth and development. The interview data was subjected to thematic analysis, which involved identifying patterns within the data and correlating them with structured classifications obtained from the surveys. The questionnaire data was analyzed using descriptive statistics, and the results are presented in the form of frequency distribution tables.

5. Results and Discussion

The results and findings are reported in three sections: quantitative studies, literature review, qualitative studies and interviews.

5.1. Quantitative and Qualitative Studies

From the questionnaires, it is revealed in table 1 that the distribution of respondents shows 69.23% are over 60 years and 38.44% had lived in Kaduna City for over 40 years. 66.67% attended Ahmadu Bello University, one of the foremost schools of architecture in Nigeria and 69.23% are males.

Table 1. Demographic characteristics of the respondents (Architects)

| Variables | Number of Respondents =39 | Percentage |
|---|---------------------------|------------|
| Gender | | |
| Male | 27 | 69.23% |
| Female | 12 | 30.77% |
| Age | | |
| Less than 30 | 1 | 2.56% |
| 30 to 59 years | 11 | 28.21% |
| Over 60 | 27 | 69.23% |
| Years of Residence in Kaduna | | |
| Less than 10 | 4 | 10.3% |
| 10 to 20 years | 8 | 20.5% |
| 21 to 40 years | 12 | 30.76% |
| Over 40 years | 15 | 38.44% |
| Schools of Architecture Attended | | |
| ABU Zaria | 26 | 66.67% |
| FUT Minna | 3 | 7.7% |
| Kaduna Polytechnic | 3 | 7.7% |
| University of Jos | 2 | 5.13% |
| Ambrose Ali University | 1 | 2.56% |
| Other | 4 | 10.24% |

Source: Developed by Authors (2023)

Table 2. Below shows the demographic characteristics of respondents who are not architects.

Table 2. Demographic characteristics of respondents (non-architects)

| Variables | Number of Respondents =25 | Percentage |
|------------------------------------|---------------------------|------------|
| Age | | |
| Less than 30 | 0 | 0% |
| 30 to 59 years | 17 | 68% |
| Over 60 | 8 | 32% |
| Gender | | |
| Male | 17 | 68% |
| Female | 8 | 32% |
| Tribe | | |
| Igbo | 5 | 20% |
| Yoruba | 5 | 20% |
| Hausa | 5 | 20% |
| Igala | 3 | 12% |
| Jaba | 3 | 12% |
| Ninzam | 2 | 8% |
| Fulani | 2 | 8% |
| Area of Residence in Kaduna | | |
| Malali | 5 | 20% |
| Badarawa | 4 | 16% |
| Barnawa | 10 | 40% |
| Television | 6 | 24% |

Source: Developed by Authors (2023)

Table 3. One-on-one interview

| Variables | Number of Respondents =14 | Percentage |
|--|---------------------------|------------|
| Gender | | |
| Male | 8 | 57.1% |
| Female | 6 | 42.9% |
| Age | | |
| Less than 30 | 0 | 0% |
| 30 to 59 years | 10 | 71.4% |
| Over 60 | 4 | 28.6% |
| Years of Residence in Kaduna | | |
| Less than 10 | 0 | 0% |
| 10 to 20 years | 0 | 0% |
| 21 to 40 years | 10 | 71.4% |
| Over 40 years | 4 | 28.6% |
| Level of Involvement with Government Policy | | |
| State Ministry of Works | 3 | 21.4% |
| Government Contractor | 4 | 28.6% |
| Private Developer | 7 | 50% |

Source: Developed by Authors (2023)

In terms of prominence, the buildings cited include the following, as shown in Table 4.

Table 5 shows the list of registered architectural firms in Kaduna since 1970 with outstanding buildings in Kaduna.

Table 4. Buildings constructed in different time periods

| Period of Construction | Popular Buildings Constructed |
|------------------------|--|
| 1970s | Ahmed Talib House, New Nigerian Building, Bank of North and Turaki Ali House |
| 1980s to 1090s | Sultan Bello Mosque, Central Bank Building, St Michael Anglican Church |
| 2000s | Mangal Plaza, Zenith Bank Murtala square NNDC mall, and Maikarfi plaza |

Source: Developed by Authors (2023)

Table 5. List of registered architectural firms in Kaduna since 1970 with outstanding buildings in Kaduna

| Sl. no. | Name of Firms | Year of Incorporation | Date of Reg. By Arcon | Address/Buildings Designed |
|---------|-------------------------------|-----------------------|-----------------------|--|
| 1 | A.A. Suscons Ltd | 2008 | 26/11/08 | U/Rimi Kaduna |
| 2 | Abodes Architects | 2009 | 11/11/09 | Kabala West Kaduna, SIECOM office, Sokoto Road |
| 3 | A.F. Partnership | 1987 | 10/12/91 | Kanji Road Kaduna Modified 10 storey (Ahmed Talib House) |
| 4 | Al-bait Associates | 1997 | 11/11/09 | Tudun Wada Zaria |
| 5 | Altigra Nig. Ltd | 1994 | 10/12/13 | Malali Kaduna |
| 6 | Allied Associates | 1994 | 15/12/98 | Waff Road U/Rimi Kaduna Allied - Allied Plaza Wahff Road |
| 7 | Allied Consultant Ltd | 2000 | 17/01/05 | Malali Kaduna |
| 8 | A.M. Design Consult | 1986 | 05/02/92 | Abakpa Kaduna |
| 9 | Archon Nigeria Ltd | 1984 | 05/09/91 | Giwa Road Kaduna Allied Bank, Ahmadu Bello Way Hamza Yad house - Savannah Bank Building - NNIL Buildings |
| 10 | Aquilla Consultants | 1988 | 10/12/91 | Waff Road Kaduna |
| 11 | Archicad Projects Nig. Ltd | 2008 | 26/05/09 | Kanta Road Kaduna |
| 12 | Achiplan Intl. Ltd | 1990 | 18/11/98 | U/Rimi Kaduna - Granite Production, - KSMC Building, Kawo UBA extension |
| 13 | Arcky Deck Associates | 2003 | 26/11/08 | Kajuru Street Kaduna |
| 14 | Arch-Tri Multidimension Ltd | 2008 | 07/12/2010 | High-cost Kaduna - BarauDikko Hospital, 1 CU Building |
| 15 | Archtrack Associates | 1988 | 18/11/04 | Isa Kanta Road Kaduna |
| 16 | Arki-Trends Consults Ltd | 2010 | 01/09/11 | Waff Road Kaduna |
| 17 | Arqimen Consultants Ltd | 1988 | 18/11/04 | Const. Road Kaduna |
| 18 | ARC-Projects Nigeria | 1984 | 14/09/96 | Ahmade Bello Way Kaduna |
| 19 | Ericon Bello | | | Jaiz Bank; Classical Revivalist |
| 20 | Best Design Consult Ltd | 2012 | 29/08/13 | U/Rimi Kaduna |
| 21 | Best Arc International | 1977 | 02/02/94 | Sultan Road Kaduna Promoted education, Kaduna South Local Government Secretariat |
| 22 | Build Design Ltd | 1997 | 08/06/15 | U/Rimi Kaduna |
| 23 | Building Anatomy Ltd | 1998 | 15/11/2011 | - NSR Junction Kaduna - Filling Station Abakura - Filling Station constitution road |
| 24 | Cellular Design Consult | 1988 | 11/04/96 | Zaria |
| 25 | Classic Professional concepts | 1996 | 25/05/09 | Anlu road Kaduna |
| 26 | Coplan Associates | 1987 | 05/02/92 | Kachia Road Kaduna Coplan office Bida road concrete sculptured, Bida road |

| | | | | |
|----|---|----------|------------|--|
| | | | | - Plaza along Independence, lecture theatre KASU |
| 27 | Current Design Studies | 1988 | 23/11/04 | Malali Kaduna |
| 28 | DAR Integrated Architects and Consultants Ltd | 2010 | 28/07/2010 | Dawaki Road Kaduna |
| 29 | Deenarc Consultants | 1989 | 04/10/95 | Rabah Road Kaduna New Plaza by Murtala Square NUC, Abuja; Nasiru House, UngwarRimi |
| 30 | Delan Associates | 1989 | 05/02/92 | GRA Zaria |
| 31 | D'ESARC Consortium | 1989 | 15/12/98 | Ahmadu Bello Way Kaduna |
| 32 | Design Matrix Associates | 1996 | 23/11/2000 | Isa Kaita Road Kaduna |
| 33 | Distinct Design Group | 1988 | 28/06/03 | GRA Kaduna |
| 34 | DUO Associates | 1996 | 07/12/2010 | G.R.A. Zaria |
| 35 | Excelarc Partners Ltd | 1988 | 04/10/95 | Kinkino Close Kaduna, Ishaku hospital, station road |
| 36 | GC Grafarc | 1990 | 23/11/2004 | Kachia Road Kaduna - Bajoga house, Mato house - Legacy School, Kaduna |
| 37 | GEO Environ Services | 2010 | 21/09/11 | Barnawa Kaduna |
| 38 | Georgeson Intl | 1982 | 27/11/07 | NarayiHighcot Kaduna |
| 39 | Grid + M Consultants | 1986 | 02/02/94 | Zamfara Road Kaduna Grid + M Office; Classical Revivalist |
| 40 | Homarch Consultants | 1998 | 26/06/11 | Waff Road Kaduna GT Bank Alkali, GT Bank Murtala square |
| 41 | KonsarchKosortium Ltd | 1992 | 06/06/06 | Katsina road Kaduna |
| 42 | KrestKonsult | 1985 | 05/12/92 | Lafia Road Kaduna; Lecture theatre KASU |
| 43 | Mahatita Associates | 1992 | 12/02/94 | Dawaki Road Kaduna |
| 44 | Mainarc Design Systems Ltd | 2015 | 25/04/2016 | Gonin Gora Kaduna |
| 45 | Mass Consult Nig. Ltd | 1990 | 23/14/12 | Suleiman Crescent Kaduna |
| 46 | Mavic Consultants Ltd | 2010 | 29/01/11 | Alkali Road Kaduna |
| 47 | Habifat | 23/07/75 | 23/07/91 | - DICON Building - CBN Housing Estate - Savannah Building |
| 48 | New Homes Consultants Ltd | 2007 | 27/07/09 | Ali Alkilu Road Kaduna |
| 49 | Newspace Consultants Ltd | 2012 | 23/08/14 | Waff Road Kaduna Murtala Square renovation |
| 50 | Pan-Arch Dev. Ltd | 1996 | 27/07/09 | Lagos Street Kaduna |
| 51 | Poparch Associates Ltd | 1991 | 31/03/08 | Alimi Road Kaduna Master plan Baptist Seminary, Kamazo |
| 52 | Prime Practice Partnership | 1998 | 06/06/06 | Ahmadu Bello Way Kaduna |
| 53 | SAL Consults 2004 | 2012 | 06/06/06 | 4/5 Crescent Kaduna |
| 54 | Satpang Consultants | 2012 | 24/04/13 | NNPC Junction Kaduna |
| 55 | Scale and Symbols Associates Ltd | 1998 | 17/12/15 | Kanta Road Kaduna |
| 56 | Seftel Associates | 1999 | 22/11/2000 | Dendo Road Kaduna; Oceanic Bank, Kakuri, GT Bank, Kano Road 2008 |
| 57 | SeseDeno and Associates | 2001 | 23/04/12 | Barawa Kaduna CBN Extension, Kaduna |
| 58 | Soft Skilled Architect | 2008 | 20/10/10 | Badarawa Kaduna |
| 59 | Tecture-Crew Ltd | 2016 | 28/11/16 | Barnawa Kaduna |
| 60 | Tri-Arch Associates | 2011 | 04/10/16 | A.B.U. Zaria |
| 61 | Triad Associates | 1983 | 02/02/94 | Rabah Road Kaduna - Political Party offices |
| 62 | New Methods | | | Sultan Bello mosque |
| 63 | Tunkey Development consultants | 1987 | 29/08/13 | Kabala Doki Kaduna |

| | | | | |
|----|---------------------------------|------|----------|---|
| 64 | Unik Homes Consult | 2010 | 20/10/10 | Narayi Kaduna |
| 65 | Ultima Ltd | 1992 | 26/11/08 | Ahmadu Bello Way Kaduna |
| 66 | Vis – Arc Ltd | 2013 | 29/10/15 | Marafa Estate Kaduna |
| 67 | Group one Dimension | 1996 | 2003 | - Standard Trust Building Ahmadu Bello Way - Department of Econs KASU - Cream Suites hotel |
| 68 | New Nigeria Development Company | | | Ahmad Talib house Turaki Ali house |

Source: Developed by Authors (2023)

Table 6. Building characteristics in different time periods

| Year | Building Characteristics |
|---------------|---|
| 1970s | Colonial style, concrete fins, flat roofs, easy access and soft landscaping |
| 1980s-1990s | Concrete façade linear shapes, contemporary styles, and parapet roof and screen walls |
| 2000s to date | Modern style, glass walls, pitched roofs, a fusion of colonial and modern styles, hard landscaping and membrane structures. |

Source: Developed by Authors (2023)

Table 6 shows the characteristics of buildings identified in different time periods. These buildings generally portray a variety of styles. The architects who designed them belong to different generations and tend to focus on different styles.

Information from the data forms shows that of the 66 architectural firms in Kaduna, two (2) were established in the 70s while forty-one (41) in the 1980s to 1990s. It shows twenty-three (23) were established in the 2000s.

5.1.1. Qualitative Studies

It is revealed from the questionnaire that the factors that have affected the development of architecture in terms of order ranking are as follows: economy, government policies, building materials, use of unskilled labour, culture, religion, politics, education (unemployable graduates) and settlement Patterns.

5.2. Test of Hypotheses

Hypothesis one H_0 : There is no significant relationship between the evolutionary process (variables) and the architectural development of Kaduna city.

H_1 : There is a significant relationship between the evolutionary process (variables) and the architectural development of Kaduna city.

The variables that form the components of the evolutionary process include

- i. Colonial Administrative Policies;
- ii. Modernization;
- iii. Government Administrative Policies;
- iv. Culture and Religion; and
- v. Architectural Design.

From Table 7, the results suggest a statistically significant association between the architectural development of Kaduna

City and colonial administrative policies. This is based on both the Pearson Chi-Square and Likelihood Ratio tests (p-values of 0.011 and 0.001, respectively). We conclude, therefore, that a significant relationship exists between the form of the architectural development of Kaduna City and Colonial Administrative Policies. The Chi-square test results suggest a statistically significant association (p-value < 0.001) between the architectural development of Kaduna City and modernization, as shown in Table 8.

Table 7. A summary of Chi-Square analysis showing the relationship between the architectural development of Kaduna City and colonial administrative policies

| | Value | df | Asymp. Sig. (2-sided) |
|---|---------------------|----|-----------------------|
| Pearson Chi-Square | 31.534 ^a | 16 | .011 |
| Likelihood Ratio | 38.449 | 16 | .001 |
| Linear-by-Linear Association | 1.180 | 1 | .277 |
| N of Valid Cases | 39 | | |
| a. 23 cells (92.0%) have an expected count of less than 5. The minimum expected count is .05. | | | |

Table 8. A summary of Chi-Square analysis showing the relationship between the architectural development of Kaduna city and modernization

| | Value | df | Asymp. Sig. (2-sided) |
|--|---------------------|----|-----------------------|
| Pearson Chi-Square | 33.225 ^a | 12 | .001 |
| Likelihood Ratio | 40.645 | 12 | .000 |
| Linear-by-Linear Association | 2.028 | 1 | .154 |
| N of Valid Cases | 39 | | |
| a. 18 cells (90.0%) have an expected count of less than 5. The minimum expected count is 36. | | | |

Table 9. A summary of Chi-Square analysis showing the relationship between the architectural development of Kaduna city and government administrative policies

| | Value | df | Asymp. Sig. (2-sided) |
|---|---------------------|----|-----------------------|
| Pearson Chi-Square | 48.579 ^a | 16 | .000 |
| Likelihood Ratio | 50.223 | 16 | .000 |
| Linear-by-Linear Association | 7.232 | 1 | .007 |
| N of Valid Cases | 39 | | |
| a. 23 cells (92.0%) have an expected count of less than 5. The minimum expected count is .05. | | | |

Table 10. A summary of Chi-Square analysis showing the relationship between the architectural development of Kaduna city and culture and religion

| | Value | df | Asymp. Sig. (2-sided) |
|---|---------------------|----|-----------------------|
| Pearson Chi-Square | 34.548 ^a | 16 | .005 |
| Likelihood Ratio | 41.669 | 16 | .000 |
| Linear-by-Linear Association | .540 | 1 | .463 |
| N of Valid Cases | 39 | | |
| a. 23 cells (92.0%) have an expected count of less than 5. The minimum expected count is .05. | | | |

Table 11. A summary of Chi-Square analysis showing the relationship between the form of the architecture and architectural design

| | Value | df | Asymp. Sig. (2-sided) |
|---|---------------------|----|-----------------------|
| Pearson Chi-Square | 50.784 ^a | 16 | .000 |
| Likelihood Ratio | 50.728 | 16 | .000 |
| Linear-by-Linear Association | 5.456 | 1 | .020 |
| N of Valid Cases | 39 | | |
| a. 23 cells (92.0%) have an expected count of less than 5. The minimum expected count is .05. | | | |

However, the high number of cells with low expected counts (greater than 90%) indicates caution in interpreting the specific nature of the relationship. While a connection exists, more data or adjustments to the analysis might be needed to pinpoint how development and modernization are linked.

From Table 9, the Chi-Square test results show a strong relationship (p -value < 0.001) between the architectural development of Kaduna City and Government Administrative Policies with high Chi-Square value (48.579) and low significance level (0.000).

From Table 10, the Chi-Square test results show a statistically significant relationship (p -value < 0.005) between the architectural development of Kaduna City and culture and religion.

The Chi-Square test results show a statistically significant relationship (p -value < 0.001) between the architectural development of Kaduna city and architectural design. This suggests that the two are not independent. However, with a

chi-square value of 23 cells having expected counts less than 5, the interpretation of the specific association needs to be done cautiously due to limitations in the data.

The major contributions of architects were identified as follows:

- Build a strong mentorship in Design, Practice and Theory.
- Architects have added to the quantum of infrastructure.
- Evolved a trade-regional legacy, tropicalized housing architecture and promoted cultural identity in the design of houses.
- Created a unique look in religious buildings such as Sultan Bello Mosque and the Saint Michael Cathedral.

Findings from Interviews

The interviews were conducted to corroborate the findings from the questionnaires and field surveys. More people with good knowledge of Kaduna and its architecture were identified. The record of architects is as follows: Dan Agama, Ayuba Natsa, Jude Molekwe, Samuel Obaje, James Qurix, Murtala Imam, Nathan Wasinda and Polycarp Gbaja, who had built many buildings as contractors. Others are Kasham Shamang, Christy Ndandok, Deborah Sabo, Juliet Obaje, Fatima Ciroma and Aisha Dahiru.

The following were deduced from the interviews when aggregated:

- Kaduna architecture is evolving with diversified styles (no particular style).
- Government policy has affected the development of architecture. Particularly colonial governments and some successive governments. This is in terms of settlement patterns, provision of urban infrastructure and presentation of colonial legacy.
- Older buildings reflected traditional attributes such as courtyards, domes, and parapet walls. Housing estates had traditional characteristics such as cute rooms, courtyards and backyards, but these are no longer prominent in modern housing estates.
- Civilization and modernization have brought about transformation to modern/contemporary styles. Old building facades are being updated and few are preserved.
- Educational training that focused on form follows function influenced early post-colonial architecture (especially from ABU). However, the need for embellishments and aesthetics came into play.
- Some buildings have effectively displayed a blend of traditional and modern features combined.
- Contemporary style includes boxy shapes, straight lines, and long, slender windows.

Interviews conducted with non-architects brought the following to light:

- There was less attention to landscaping before the 2000s.
- Higher roofs.

- Different building materials – more use of concrete in the 70's and 80's.
- Older houses were more spacious.
- Building materials available in the market hamper change of form – buildings are still made of concrete so there is no flexibility of form.
- The use of alternative sources of energy has become more prominent.
- Northerners show a preference for more decorative features; Southerners prefer solid functionality.

Of the number of architects and non-architects interviewed, 80% mentioned the prevalence of higher roofs, the use of hard landscaping and smaller tracts of land on which buildings now stand. This may be one of the causes of vertical expansion as opposed to horizontal expansion.

5.1.3. Findings from Field Survey

The field survey was conducted to provide a first-hand observation of the characteristics of prominent buildings in terms of planning, form, key features, finishes and style; the following were the findings:

Planning

The linear rectangular plan is the most dominant form of planning for residential and institutional buildings, and this appears to be the case right from the 1970s.

However, from the 1980s and 1990s, the plan had both cellular and open spaces for a variety of functions. Compartmentalized planning has become more common since the 2000s.

Form/Shape

From evolved form, the simple rectangular mass of the 1970s, to expressive concrete and sculptured forms of the 1980s and 1990s. Interlocking cubic forms have emerged recently.

Key Features

The dominant feature in the 1970s is the use of sandcrete blocks with cement sand render with wide glass openings and emulsion paints. This evolved into the use of concrete, steel and glass elements with parapet walls, fins, window hoods and sculptured elements. Recently, key elements include plane walls, cappings, moulds, narrow windows and rough textured exteriors, and glass panel walls, as well as light weight appearance and high-pitched tiled roofs and interlocking volumes. Interiors have granite floor tiles and expensive oil-based paints even old buildings are re-modelled to be stylish.

Style

The dominant post-colonial style was vernacular, which gradually evolved into simple modernist, late modernism and

contemporary styles. In an attempt to preserve traditional forms in modern architecture, trado-modern style of the late 60s State house, Lugard hall, underlined the architectural landscape.

There is an emerging contemporary architecture style described as complex simplicity made up of simple interlocking cubic forms, plane walls, hoods, capping, moulds, balconies and compartmentalized planning.

6. Analysis of Results

In analyzing the findings, we adopt the pattern in which the results were presented.

6.1. Validity of Data

The following four data sources were used to produce the results: literature, interviews, questionnaires, and pictorials. The accuracy of the findings was increased by the use of mixed methods in qualitative investigations, which has also been applied in other studies.

In order to produce more objective and reliable data-driven findings, triangulation of the themes obtained using primary and secondary data was used (Jonsen & Jehn, 2009). A triangulation of the data (Figure 18), selected themes, and body of literature ensured the validity of the results. The literature and the research findings support the themes that are discussed below.

6.1.1. Theme 1: Demographics

There is no significant difference between the responses of the different age groups. The opinions of the participants in this study may be attributed to their deep understanding of the subject matter, which is crucial for the quality of this research. The qualitative data also shows that the majority of respondents had lived in Kaduna for over 30 years suggesting that they were sufficiently informed about the architecture and the environment of Kaduna.

Most of the professionals had studied at Ahmadu Bello University, where the teaching was centered on functionality and ethno-centric tendencies. The prominence attached to a building did not automatically confer prominence on the designer. In that regard, buildings identified as prominent did not coincide with the architects listed as prominent. Given the size of Kaduna's population, which was over 6.5 million in 2009, the number of 67 registered firms was relatively inadequate.

However, the majority of the firms were registered between 1980 and 1999. This period coincided with the period of increased production of buildings and when settlement patterns began to be altered due to religious crises and illegal land trading.

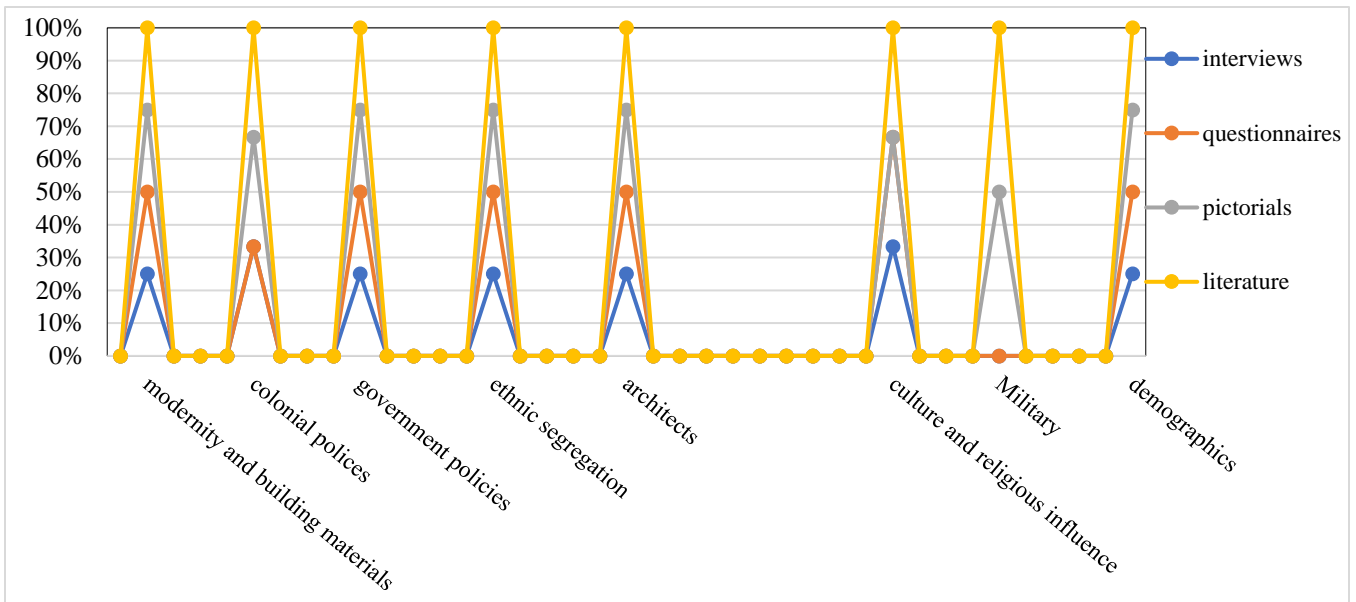


Fig. 18 Triangulation of coded themes

Source: Developed by authors (2023)

6.1.2. Theme 2: Colonial Government Policies' Influence on Architectural Form

The qualitative data from literature, questionnaire and interview presents interesting views reflected as follows: colonial government policies that segregated colonial/European quarters from that of clerks and servants naturally influenced the quality of infrastructure in these areas. Some of the key colonial buildings were built before 1960. These include parts of the Lugard hall, Gen Hassan Usman's house, Kaduna Prisons and Barau Dikko Children's Hospital. They were, however, located around the GRA areas.

6.1.3. Theme 3: Ethnic Segregation/Social Unrest and its Influence on Architectural Form

As the town began to expand following increased commercial activities in the 70s and a massive influx of citizens from different parts of Nigeria since Kaduna was peaceful and accommodative of settlers, building production increased, but the quality was generally higher in Ungwar Rimi ward (the colonial area); Doka, a massive settlement of latest African nationals. Later on, Tudun Wada and Kakuri (where many textile workers and military personnel resided). These areas began to wear new looks in the 80s.

Some of the reasons include co-habitation between citizens of different ethnicities, and perhaps the most significant factor that altered the settlement pattern of Kaduna since Lugard's time was the religious crises of 1987, 1992, 2002 and 2011. During this period, there was a massive movement of settlers, according to their faith, from places considered unsafe to places considered safer. Thus, Ungwar Rimi, Barnawa, Gonin Gora and Kawo were affected by a massive inflow of settlers.

6.1.4. Theme 4: Modernity and Material Influence on Architectural Form

Meanwhile, movement to places such as Hayin Banki, Kakuri, and Kabala West was relatively lower as these areas were considered fairly neutral or balanced. The significance of this was an increase in building production and improved quality of building. In a way, it improved architecture in most parts of Kaduna, even as residential buildings with similar characteristics began to grace the skylines in the new settler communities. Perhaps 'modernization' and the urge to appropriate current architectural style provided an incentive for new building production. Some of the interviewees attested to this.

Apart from colonial government policies, other successive governments played a significant role. The state government in the '90s identified certain roads, such as constitution road and compelled developers to build at least two floors along the road. This contributed to the improved construction of a variety of office buildings, such as the Micomana Building, Khemsafe and KC building.

6.1.5. Theme 5: Military Influence on Architectural Form

Earlier, the Military Administration attempted to continue with the colonial legacies of trado-modern design in the construction of Government Guest Houses along Kufena and Ali Akilu roads. The layout of these guest houses is a circular, enclosed courtyard, with rooms surrounding the courtyard, perhaps in an attempt to mimic traditional Gbagyi planning of scattered huts arranged in a circular manner surrounding an undefined courtyard. However, this style has not been replicated in many places. Recent efforts by the government towards urban renewal appear to be yielding a positive impact

on the environment in terms of improved circulation flow, city beautification and good-quality architecture. The strengthening of the development control mechanism backs this through two important agencies such as, the Kaduna State Urban Development Agency (KASUPDA) and Kaduna Geographic Information Service (KADGIS).

6.1.6. Theme 6: Culture and Religious influence on Architectural form

Looking at factors that affected the architecture of Kaduna, respondents listed government policies, economy, culture, religion and the preservation of traditional values as key. The choice of building types and styles in the 1970s – 1990s had much to do with affordability as clients settled for mainly functional buildings. As the economy improved, there was a need to focus on other areas, such as using brick tiles for beautification and improved fire and weather resistance. Also, long span roofing sheets began to give way to roof tiles, and emulsion paints were now to be applied on troweled tyrolean finish as a way of improving weatherability. Three similar styles have been identified. These are Trado-regional, Trado-modern and the Revivalist style. They are similar in their use to traditional building elements such as narrow windows, parapet walls and plane walls. However, the Revivalists emphasized an attempt to recover colonial values in the use of classical elements (columns, arches) and deep-pitch roofs as well as compartmentalized entities. De crystal hotel style is an example. Trado-modern style is an attempt to blend traditional architecture and modern architecture (Lugard hall is an example).

The trado-regional style – is traditional architecture represented in a modern form. The GT Bank Murtala square represents a clear example of this. The prevalence of various styles has been reflected in the responses from the questionnaires and interviews. It may be tied to the plurality of the society, particularly within the metropolis. One of the strengths of the architecture community in Kaduna is the existence of a mentorship culture between young and old architects. This was largely the case between the 1970s up to 1990s, but the culture began to wane, perhaps as a result of pressure from commercial interests rather than professional excellence. Also, modern training in schools of architecture through the use of digital technology has brought some liberalism in the mindset of younger architects who would rather embrace different styles that are contemporary than become ‘trapped’ in the functionalist ideologies of their masters. However, this liberalism is being balanced by the forces of trado-regional stylism and the promotion of cultural identity, especially in the design of houses.

Nevertheless, the body of architects, through its activities, had served as a major pivot in shaping the policies of the national body, especially in the 90s. Two prominent religious buildings, Sultan Bello Mosque and the St Michael Anglican Church appear to serve as templates for the design of other

religious buildings, at least from the point of view of elemental composition.

6.1.7. Theme 7: Architects Influence on Architectural Form

While the quantum of production is increasing and the styles are diversified, there are only a few buildings that are responsive to energy efficiency, green architecture and technological pragmatism. These are areas that require focus by the architects. Also, regulatory agencies such as KASUPDA and KADGIS would need to incorporate sustainability and green architecture as part of their requirements for planning provisions.

7. Conclusion

In view of the preceding, the development of architecture against the background of the history of the city was examined, including government policies and architectural characteristics of buildings. Also, the factors that have influenced architecture and the contributions made by architects were examined.

The use of questionnaire, field survey and interviews provided a reliable basis for validating responses, and from the analysis of findings reported, the following could be concluded:

- The evolution of Kaduna City could be traced to multiple factors, which include pre-colonial Gbagyi settlements, colonial establishments, military and socio-economic factors. The Township ordinance of the colonial government in 1917 encouraged segregation of the city along economic lines, which affected building production in terms of quality and quantity. The construction of colonial infrastructure defined the character of architecture before independence, and this character influenced future architecture even as architects struggled to unify colonial architecture, modern architecture and traditional architecture.
- Factors that have influenced architecture include economic, government policies, culture and religion. Changes in economic indices influenced clients' need to remain “functional” in the early 70s but embraced more diversified styles in the 80s with more economic prosperity. Culture and religion have affected Kaduna architecture as they drive the desire to reflect symbolism and relevance in design. Specifically, religious crises have aided rapid building production and have, in a way, created a new conservative elitist where buildings tend to embrace modern elitist characters but with religious inflexions for identity. The absence of highly trained skilled workers and artisans affected the quality of the built environment until recently, when the artisans became better equipped and positioned to achieve quality finishing.
- Government policies have impacted positively on the development of architecture, particularly, planning and

development control policies have compelled architects to conform to standards. Although such policies are often restricted to plan, functionality and area coverage, they have served the purpose of providing a peer review mechanism for architects to guarantee minimum quality. The recent policy drive towards urban development has produced diverse results, with new buildings springing up in different contemporary styles, such as the Shoprite building and Murtala Square redevelopment. They have beautified the environment as well as created a new sense of order.

- Architects in Kaduna have created a good sense of mentorship, especially from the 70s to the 90s, but this, however, tended to create a conservative response to architecture until recently, when younger architects have become more liberal and are de-emphasizing mentorship. However, the forum of the Nigerian Institute of Architects (NIA) has remained an important forum for mentorship through its seminars, workshops and professional programmes such as this one. The phenomena of

freelancing and visualizing, as commonly practised by younger architects, is unsustainable as it tends to transfer the professional responsibility expected of the architect to third-party colleagues.

- Architecture in Kaduna is likely to receive a positive boost with the current urban development drive of the government as the signs are already showing. What is required is to sustain the tempo and to deliberately bring architects into the loop of policy formulations and implementation. Here, the NIA has a role to play by initiating policies that are attractive to government and stakeholders and lobbying to ensure that such policies are implemented. Architects should practice in styles that give a contemporary definition to the city.

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