HOUSING, ARCHITECTURAL THEORY AND PRACTICE: EXPLORING THE UNIQUE ADEQUACY APPROACH IN HOUSING RESEARCH FOR COMMUNITIES IN NIGERIA

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ABSTRACT

In response to the demand for housing units which will cater to an increase in population, housing research in Nigeria has generally benefitted from studies related to housing finance, mortgage, land acquisition, appropriate building materials and technology. Comparatively less attention has been paid design and spatial requirements for future housing units, leading to the dearth of appropriate theories to inform future housing policies. This is an area academia through architecture education needs to adequately address. This paper explores the Unique Adequacy approach from Construction Management Research through interdisciplinary methods from Anthropology, Sociology, Behavioral studies and Architecture in two stages. The approach was explored in Tangale land, northeast Nigeria to generate appropriate architectural theories and offer practical suggestions towards improving future housing policies. Northeast Nigeria is a region which has received little by way of intense architectural research in part due to mountainous terrain and a rise in insecurity and insurgency in the last four years. Results from the first stage, an ethnographical survey reveals that external influences on the culture influenced the basic lifestyle of the community. Architecturally, this is expressed in changing housing typologies. Architecture conforms and reflects dynamic culture in a passive capacity. The second, a demographic and measured survey was instrumental in establishing the sustainability of cultural values in community-produced compounds. Architecture serves as a mechanism of cultural resistance in an active capacity within the study area. An implication of findings from this paper is that architecture education plays an important role in training and equipping future architects to generate appropriate theories and data

necessary to improve design and practice. This can be achieved through reviving awareness for original research during undergraduate training as well as pro-active interdisciplinary collaboration with allied disciplines of the built environment in postgraduate programs.

Key words: Housing research, unique adequacy, architectural theory and practice, interdisciplinary methods, Nigeria

Introduction

Over the last decade, Nigeria has recorded a steady increase in population creating an unprecedented demand for housing [1], [2], [3], [4], [5], [6]. The dearth of appropriate housing theories and research guiding practice across the country however presents a problem in this regard. This is largely because most housing related research have been conducted in urban areas and around well-documented language groups [7]. To this end, several stakeholders in the Nigerian built environment have called for research focused on housing needs, design and spatial requirements of different cultures [8], [9], [10], [11], [12].

The issue of appropriate architectural theories to guide design and practice is unfortunately a more widespread problem relegated not only to the Nigerian scenario but to architecture as a discipline [13]. This is especially true of housing studies [14], [15], [16]. Rapoport [17] notes this lack of theory necessitates the need to always begin with the basics instead of 'launching right into substantive issues and thus advancing the field' [p. 2]. This arises in part due to the complex nature of housing influenced by conscious human action and organization, amidst other factors. Such complex problems may only be effectively addressed through interdisciplinary approaches from allied disciplines of the built environment [18]. Architecture needs to interact and open up to possibilities inherent in employing potentially fruitful and provocative methodologies other disciplines have embraced. In response to the argument of the possible effects of an over easy mixing of discourses, Leach [19] in *Rethinking Architecture* maintains that 'the very immersion of architecture in the seemingly homogenizing morass of inter-disciplinarily is precisely what guarantees and augments its own individuality' [p. xvi]. Academia through architectural education and research offers the most promising platform for such interaction towards generating appropriate theories to inform architectural practice especially for housing. Unfortunately, this is often not the case.

This paper explores the Unique Adequacy (UA) criteria from Construction Management Research (CMR) through methodologies drawn from Anthropology, Sociology, Behavioral studies and space syntax analysis from Architecture [18]. The research question posed is *How can inter-disciplinary research within architecture generate appropriate theories addressing housing problems to improve architectural*

practice in Nigeria? The study aims at addressing the dearth of appropriate housing theories and architectural data to guide future housing policies to be adopted for Nigerian communities. Tangale land was chosen for the study due to its relative central location within northeast Nigeria (Figure 1). This region has received little by way of intense architectural research in part due to hilly/mountainous terrain and more recently, an unprecedented rise in insecurity and insurgency resulting in loss of lives, destruction to property and whole settlements. Housing related research is urgently needed towards rehabilitation efforts for affected communities in the very near future.

The paper is structured into five sections after the introduction. Section 2 briefly reviews the UA criteria in two forms-its weak and strong components. This is followed by a description of the methodology adopted for the study, results and implications on design and practice accruing from the fieldwork in Sections 3 and 4 respectively. Implications of findings from the study on architectural education and practice are highlighted in Section 5, followed by references pertinent to the study in Sections 6.
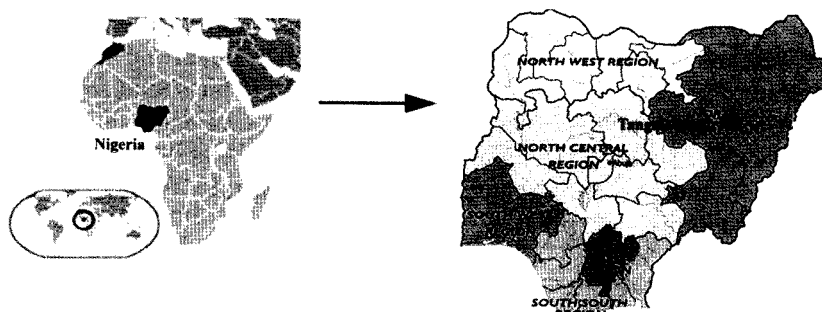

Figure 1 : Location of study area in Nigeria [20]

The Unique Adequacy Criteria: A Brief Review

The UA criteria are derived from the sociological discipline of ethnomethodology to evaluate and improve research in CMR [21]. It consists of two forms, a weak and strong component. 'The weak form demands that the researcher is competent in the research setting; the strong form, that research reports use only concepts originating within the research setting' [p. 1].

In its weak form, the UA criteria requires that to adequately analyze a construction industry setting, the researcher must know what any participant in that setting would ordinarily know about it [ibid]. This knowledge is expressed as competence. In other words, the researcher must first prove the ability of carrying out relevant activities within the setting without censure from its members. Acquiring competency in this regard usually takes the form of ethnography, participant observation, interviews and use of questionnaires. Thorough interaction with informants who are competent in the

setting and are capable of transferring such knowledge is usually sufficient to meet the first requirement. This is frequently the case where the researcher is encountering the setting for the first time as an outsider.

The strong requirement relates to the manner such research is reported. It requires that methods of analysis used in a setting be derived from that setting. 'In effect, it stipulates the application of a policy of ethno-methodological indifference; a refusal to evaluate, describe or explain the activities that constitute the setting using criteria, concepts or theories that are not a part of that setting' [ibid, p. 11]. Put together, the UA criteria demands that research reports findings, concepts and theories originating from a particular setting whose modus operandi is general knowledge across its members.

The UA set of criteria has its origins in Schutz's postulate of adequacy. Schutz asserts that scientific theories require objective terms with logical consistency and meaning on every occasion they are used [22] in [21]. Objectivity, consistency, replicability and generalizability are hallmarks of the scientific method and reporting for inanimate phenomena obtained in most natural science disciplines. A problem arises when subjects of research are animate; capable of consciously reporting feelings, attitudes and perceptions common in people- oriented disciplines in the social sciences and built environment. Meaning and interpretation of observed findings and theory are thus specific to a setting. Schutz's postulate of adequacy holds that 'any act referred to in a theoretical model must be understandable by the actor and by those observing the act in common sense terms' [21, p.7].
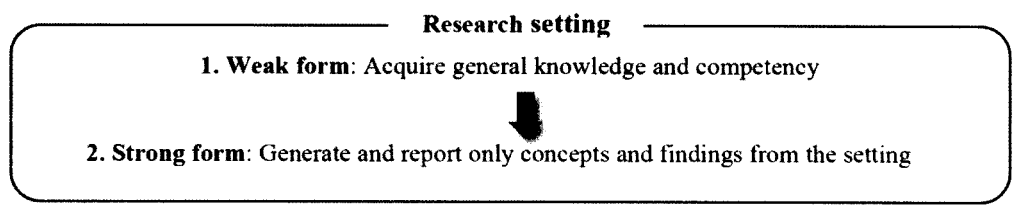

Research setting

1. Weak form: Acquire general knowledge and competency

2. Strong form: Generate and report only concepts and findings from the setting

Figure 2 : UA criteria

Methodology and Research Instruments

Employing the UA criteria from CMR, two surveys were designed to address the dearth of architectural data and generate appropriate housing theories and factors influencing housing and residential structure in the study area. This is illustrated in Figure 3.
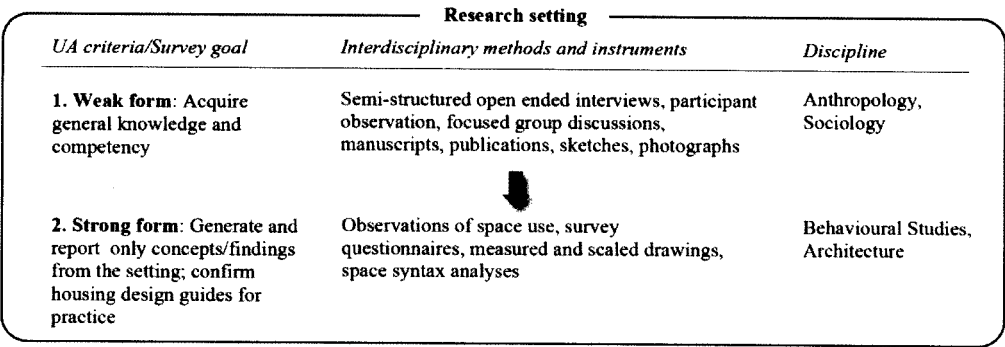
UA criteria/Survey goal	Research setting	
	Interdisciplinary methods and instruments	Discipline
1. Weak form: Acquire general knowledge and competency	Semi-structured open ended interviews, participant observation, focused group discussions, manuscripts, publications, sketches, photographs	Anthropology, Sociology
2. Strong form: Generate and report only concepts/findings from the setting; confirm housing design guides for practice	Observations of space use, survey questionnaires, measured and scaled drawings, space syntax analyses	Behavioural Studies, Architecture

Figure 3 : Research framework. Adapted from [18]

The first survey, based on the weak form of the UA criteria explores relationships between culture, architecture and housing. Housing in Tangale land comprises compounds made of individual units and other supporting structures within confines of open but walled courtyards [20]. This forms the vast majority of architecture and the built environment. In order to achieve competency, the primary requirement of the weak UA criteria, 50 elderly informants who have experienced variances of the culture were targeted for an ethnographic account of the community [18]. Open ended semi-structured interviews and additional information from publications, gazettes, newspapers, personal manuscripts, participant observation, field notes, photographs and sketches were chosen to achieve this aim. These are interdisciplinary research instruments from Anthropology and Sociology. Themes discussed during the interviews include history, values, norms, language, political organization, economy, symbolism, housing, spatial organization, activities/settings, social structure, family life, gender roles, domestic routine, play, recreation/leisure, transmission of tradition/local knowledge, religion/beliefs, social structure, kinship/residence, amenities, influences of Western/other cultures, occupation and the effect urbanization and technology [23].

Based on the strong form of the UA criteria, the second survey reports concepts and findings from the study area. Interviews with informants during the first survey established 4 events in the history of the community. These constitute themes for the ethnographic narrative of the Tangale people. Participant observation, photographs and sketches of housing typologies collaborate with the historical events [20]. These became instrumental in generating two hypotheses. First, architecture serves as a container and reflector of dynamic culture [24]. Second, architecture serves as a mechanism of cultural resistance [25]. The hypotheses were tested in the second survey using survey questionnaires, space syntax analyzes and observations of space use. These are interdisciplinary research instruments from Architecture and Behavioral studies. Space syntax analysis is a method for 'measuring space and identifying patterns in space use based on the assumption that order in space originates in social life' [26]. The sample was obtained from *Tangaltong*, the first of seven clans of the community.

The number of families in the clan, 29 was approximated to 30. 1 household was randomly selected to represent each family in 3 urban towns occupied by the clan. Half of that number, 15 was employed to randomly select compounds in surrounding villages, making a total of 45 [27]. Details of findings from both surveys are presented in Section 4.

Results and Findings from the Surveys

Results from the first survey

Data from the first survey is presented in an ethnographic narrative of the Tangale community [7]. After interactions with the first 20 elderly informants, 4 historical events became frequent references during discussions. These include migration from Yemen and settlement on the Tangale hills in northeast Nigeria (13th –14th Century); advent of colonials, tradesmen and missionaries at the turn of the 20th Century; relocation from the hills to the lower surrounding plains from 1946-48 and Nigerian independence (1960 to date).

Migration from Yemen and settlement on the Tangale hills (traditional life): Oral traditions maintain that the community migrated in stages from Yemen, eventually settling on the Tangale hills around the 13th –14th Century. Traditionally, Tangale settlements, and farmlands are organized according to seven clans based on strong kinship ties, social network, equity and brotherliness [27]. This value system and worldview, referred to as *di molle* or living together with kinsmen was advantageous for several reasons. It provided security and manpower in a period of frequent inter-tribal wars and for farming, the main occupation of the community. This arrangement was also reflected in the political structure where a head represented each clan at councils presided by the *Mai*, ruler of the community.

The Tangale practice an outdoor open lifestyle and activity pattern largely delineated along basic needs and gender roles [18]. This was reflected in the spatial organization and location of compounds within settlements. Spaces for basic functions such as socialization, family life and transmission of skills, play and leisure were determined by patrilineal kinship relationships. It was largely a function of which clan, sub-clan and family a man belonged to. This resulted in clustered organic village and settlement layouts. Gender roles are distinct from traditional times to present day. This was expressed in the spatial arrangement of housing units within compounds and wards belonging to members of an extended family.

Men go to farm and provide food, shelter, basic amenities and security for their families. This is largely responsible for the preponderance of communal leisure spots (*tibilto*) and forecourts (*tal mana*) under designated trees for male related activities such as receiving condolences in times of bereavement, family meetings, play and surveillance

to individual compound entrances. Visitor's huts (*kanthilang*) or sheds (*kulthur*) at entrances to compounds often serve this purpose. Rearing of cattle, sheep and pigs also features in many households as part of male gender functions within open courtyards (*shenga*) close to entrances. The open courtyard is however basically a female domain where most household and domestic activities occur [20]. Women raise children, prepare meals, wash up/clean as well as procure firewood. Cooking frequently occurs within open courtyards or cooking huts during the rainy season between April and September. Other basic functions such as sleeping, storage and personal needs occur within sleeping huts, barns and baths respectively (Figure 4, typology 1 and 2). Low compound walls were constructed either of stones, mud or guinea cornstalk.

Advent of British Colonials, Islamic tradesmen and Christian missionaries: External influences of British Colonial masters in 1906, Islamic tradesmen in 1918 and Christian missionaries from 1928 introduced new technologies, free education and foreign building materials such as cement and corrugated iron sheets amongst other commodities. This encouraged the adoption of rectilinear typologies (Figure 4, typology 2).

Relocation from the Tangale hills to the surrounding lower plains from 1946-1948: Following the return of soldiers from World War II, the British government, in compensation recommended the provision of social amenities such as roads and water. The community was thus requested to relocate to the lower surrounding plains [7]. This move provided ample opportunity for experimentation with new building materials and typologies around Billiri, the main town occupied by the Tangale people today (Figure 4, typology 3).

Nigerian independence from 1960 to present day: British colonial rule in Nigeria lasted till 1st October 1960. Subsequent decisions by government encouraged the development of physical infrastructure and education. By the turn of the 21st Century when the first generation of civil servants trained by the missionaries retired, they imported modern concrete designs and bungalow styles of housing from urban centers in Nigeria [20]. These have assumed an elitist social status within the community (Figure 4, typology 4).
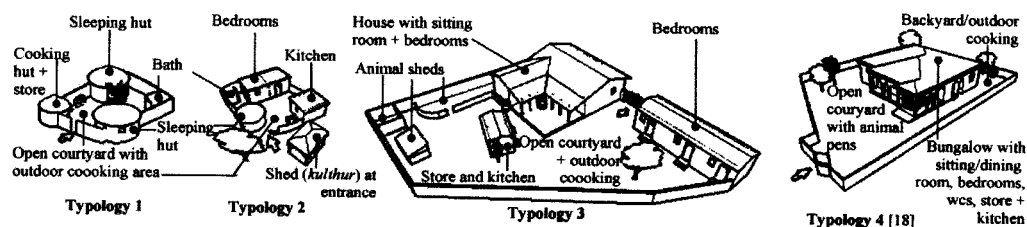

Figure 4 : Housing typologies from the study area. Source: Author's fieldwork, Jan. 2012

Results from the second survey

The second survey provides quantitative evidence suggesting architecture, through housing conforms and reflects changes in dynamic culture in a passive role supporting the first hypothesis generated from the ethnographic study. Compounds surveyed are classified according to the year of construction and building materials employed (Table 1). These affect the style and appearance of housing units. Other changes to housing in line with the first hypothesis are plan shape (circular to rectilinear) as well as the introduction of function specific spaces such as dining rooms, garages, toilets and sitting rooms over time. These are largely influenced by economic factors such as income, cost of available building materials, technology and social status.

Table 1: Relationship between historical events and housing typologies. Adapted from [7]

Historical event	Migration from Yemen (13th-14th Century)	Colonialism, Islam and Missionaries from 1906	Relocation to lower plains from 1946	Independence from 1960	Present day
Housing typology	1st	2nd		3rd	4th
Description	Mud huts/structures with thatched conical roofs in tight patrilineal family clusters	Mud huts and rectilinear rooms clad with corrugated iron sheets in family lands		Concrete/mud rooms and houses clad with corrugated iron sheets in clan lands	Free standing concrete bungalows in clan lands
No. of cpds./ %	1 (2 %)	9 (20%)		30 (67%)	5 (11%)

Scaled architectural drawings establish the sustained practice of locating compounds within occupied clan lands with single entrances in full view of streets for security purposes as practiced in traditional times [20]. Space syntax analyzes also confirm open courtyards and verandas (covered extensions to courtyards) as the most integrated spaces across the sample. These correlate with observations of space use within surveyed compounds [27]. Space syntax analyzes often involve establishing integration values for housing and urban layout. This is a mathematical figure calculated for each space as a reflection of the extent to which that space organizes and integrates access and movement and by implication, social activity and network [28]. The most integrated spaces, when not open courtyards or verandas were noted to be 1 step away from either the courtyard or veranda in the sample [27]. Additionally, spaces considered basic by Tangale standards such as bedrooms and stores continue to be used in non-specific ways, often simultaneously catering to multiple functions such as sleeping, receiving guests, eating and storage in the case of bedrooms. Stores are often designated as rooms on floor plans and employed for different purposes as the need arises. This is true of the aforementioned courtyards and verandas. These observations are largely influenced by socio-cultural factors of kinship/social network, security, basic needs and gender roles, supporting the second hypothesis. Architecture through housing serves as a mechanism of cultural resistance in the study area in an active role.

Implications of findings on design and architectural practice

The implication of these findings on design and practice is that community-produced compounds successfully balance the dynamic relationship and tension between the passive and active roles architecture plays within the study area. Future housing policies need to take this balance into consideration. Specifically, design of housing units ought to consider:

- Locating residential areas within occupied clan lands for social networking and security according to traditional practices [20]. This requirement is critical for communities in the northeast region of Nigeria facing escalating insecurity and insurgency. The inadequate consideration of this simple measure is suggested as a major factor contributing to the continued abandonment of government provided low-cost housing units in the community despite rising housing demand [27].

- Basic spaces such as open courtyards and verandas linking various parts of a compound should be designed to adequately support domestic activities and gender roles. The focal position of these spaces should be taken into account in future designs for privately funded or government sponsored projects. The most integrated space in modern houses and bungalows, when not a courtyard or veranda should ideally be designed a step away from open courtyards or verandas. The failure to achieve this requirement is suggested to have contributed to the modification of some government funded prototype houses in the study area [27]. The continued use of open courtyards and associated verandas in the community may however be modulated by physical and environmental conditions in a hot dry climate. This is an area in need of further investigation beyond the scope of the present study.

- Flexibility in the design of housing to accommodate multi-function and expansion of sleeping and storage spaces as family sizes increase. In traditional environments, mud structures are recycled for new building projects thereby accommodating the issue of flexibility. Unfortunately, concrete, though preferred by the majority of respondents largely due to social status and maintenance considerations, is inflexible and relatively costly. This presents an area for further research in future [18].

Conclusions

This paper addressed interdisciplinary research within architecture to generate appropriate theories for future housing policies and practice. This was expedient in light of the dearth of appropriate housing theories to guide the design of units towards alleviating future housing needs of an increasing Nigerian populace. Interdisciplinary methods from Anthropology, Sociology, Behavioral studies and Architecture were

integrated within a framework from CMR to generate theories and design guides for housing in Tangale land, the study area.

The implication of this on architectural education in Nigeria is dual fold. The first is the need to urgently revive and stress awareness for original research within the undergraduate curriculum. This aspect is weak in many Nigerian schools of Architecture. Architecture is a discipline requiring enormous quantities of information on a continual basis largely because it is interdisciplinary in many respects. This is further compounded by the fast pace of technological and cultural changes in the world today. Architects need to appreciate their responsibility in generating appropriate technical and human related knowledge during their formative years of training. This can be incorporated within the research methods/independent project course offered by many schools. Secondly, postgraduate architectural research needs to be re-positioned towards interdisciplinary methodologies as illustrated by this paper. While the focus in recent years has been on improving IT and CAD skills to meet up global standards, postgraduate curricula in Nigerian schools of Architecture need to open up to more interdisciplinary collaboration and specialization with allied disciplines. These have the potential of equipping future architects with basic research skills to generate the requisite knowledge towards improving design and architectural practice in the country.

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