ARCHITECTURAL EDUCATION CHANGE NEEDS: RESPONSE TO CHANGES IN OCCUPATIONAL CLIMATE

A. C. OGBONNA, Ph.D
Department of Architecture,
University of Jos,
Jos.

And

N. O. AGBO
Department of Architecture,
University of Jos,
Jos.

Abstract

The operational environment for architects continues to experience changes over the years. Some of these changes emanate from social technological, environmental and regulatory controls, and increasing challenges due to encroachment and competition from allied professions. Architectural education which has remained significantly stagnant over these years needs to be modified to meet the challenges of current occupational requirements. This paper examines the deficiencies of the present day architectural educational system and explains new approaches towards meeting meta-skills which has become a necessity in the current multi disciplinary construction industry. lt further asserts that for architectural schools to produce architects who are truly generalists, they must expand their curricular to include: evidence based study hinged on case study research, live projects experimentation and student - centered learning approaches.

The theme of the recent 'Oxford conference' was "A re-evaluation of education in architecture" and the intentions are very apt for architectural education globally. It states that "in the rapidly changing world around us, the time has come to reset the agenda and lay the foundations for a new generation of buildings and designers for the 21" century and the education that will inform them" (Oxford Conference, 2008). The architectural profession in Nigeria as in other parts of the world faces several challenges. Some of these challenges are driven by;

i. Looming environmental challenges such as climate change with the associated temperature and precipitation changes, loss of biodiversity, desertification etc.

ii. Resource depletion including energy sources, deforestation, water shortage

iii.   Technological changes: information technology, new building materials, construction methods, building service technologies and household appliances.

iv.   Social changes: Rate of urbanization, increase in population, professional diversity and increasing multi-disciplinary nature of the construction industry, social expectations, and political changes.

It has therefore become imperative that, in addition to the age-long goals of teaching architecture students the science of buildings and the artistic expressions inherent in architecture, new challenges are presented by cross-discipline cutting issues such as social equity, environmental sustainability, energy efficiency and technological advancements in building services and the construction process. These challenges require that the architect be educated differently and that foundations for adaptive and flexible future education be established. In this paper the case is made for changes to the content and structure of architectural education in Nigerian Universities. Some approaches are suggested in order to address some of the perceived training needs of future architects.

The Architect and the Construction Industry

In the recent years there has been evidence that the architectural profession has drifted from a leadership position in the building industry to that of relative weakness and marginalization. While some of this may be attributed to systemic changes in the construction industry, (e.g. changes in project procurement routes and increases in sub specializations) it is probable that the activities and inactivities of the profession have contributed significantly to these trends.

Local, social, environmental and economic concerns appear to have taken a back seat as drivers of architectural development in Nigeria. It is rather the borrowed ideas, styles and technologies on the glossy pages of architectural magazines that inspire our designs. While the idea of eclecticism in architecture is well established and accepted the ideas of such exercises need interface seamlessly with society and environment in order to have contextual relevance. Sadly, our Architecture appears to flourish on borrowed stylization based on the urge to modernize, image making and self indulgent stylism.

The International Union of Architects (UIA), (2002) had observed that "Architecture should be considered a service, accessible to the whole community. It could act as a mediator of social tensions and should be considered a resource, one of the instruments which contribute to the balance of society". Architecture should provide the 'theatre' for human existence satisfying both the visual and functional needs of the users and clients. It should be both 'practical' and 'inspirational'. However, there is

evidence to suggest that there is considerable disconnect between the Nigerian architects and the members of the general public. Statistics indicate that less than 5% of the residential buildings in Nigeria are architect designed; this underscores the very limited scope for direct architect-society interaction. Yet by their training the architects are expected to bear a significant responsibility for the quality of the built environment as well as the comfort, health, safety, cultural identity and interests of the public.

There are ongoing concerns about the emphasis on architecture as a fine art and the excessive focus of architecture on iconic buildings demanding a steady stream of visual novelties much to the detriment of well adapted but often more visually subtle solutions. This trend is driven in part by 'the "commodification" of architecture and the emergence of "architainment" (Mehaffy, 2008): Forms of branding aimed at satisfying the needs of the corporate bodies and wealthy patrons while simultaneously distinguishing and promoting the architect. Indeed, the traditional role of the architect as a servant of the rich and powerful appears to be prevalent perception of the architect among the Nigerian population. The Nigerian society does not necessarily perceive the architect as offering 'vital' and 'indispensable' services such as those offered by the medical and legal professions. Nigerian architects therefore need to be reconciled to the moral task to which they are commissioned; that is a service provider with the interests of the human society as its focus. Presently, the architects role as a representative of the client seems to have taken precedence over his other roles as a community advocate, an environmental resource manager and champion, a facilitator, inspiration and catalyst to community action.

Further to these issues of the architect's role in society are the traditions in professional practice as well as in schools of architecture that promote the primacy of the individual architect/student against collaboration. This emphasis on the individual is often perceived to be responsible for the adversarial traits that are prevalent in the building construction industry and which undermine the architects' potential to be principal agents of change in the built environment.

Preparing the Student Architect

`Two broad goals of architectural education are at the core of the proposals put forward in this paper. The first is the National Universities Commission (NUC) (2004), minimum academic standards which identifies the broad goals of architectural education as:

To produce "a competent, skilled and versatile individual capable of facing a broad spectrum of challenges of the environment for human and other activities".

The NUC definition of objectives goes ahead to list the competencies expected of graduates to include the ability to effectively design and plan, erect, commission, maintain, manage and coordinate the activities and inputs of allied professionals in the development of the built environment in different cultural and environmental contexts. It also identifies general skills expected of graduates from architecture schools to include: numeracy, communication skills, interpersonal skill, organizational skill, information Technology skills entrepreneurial skills and study skills.

The second goal of architectural education is derived from the UIA (2002) which in the NUC goals notes that architectural education should "produce good world citizens who are intellectually mature, ecologically sensitive and socially responsible".

Content of Architectural Education

There have been rapid changes in the social, environmental and economic spheres of the Nigerian society. The rates of occurrence of these changes demand an expansion of the traditional architectural decision making frame to include social, environmental and economic concerns. One of the implications of such a shift is that the architect needs to be an 'educated generalist'; displaying more than cursory knowledge and understanding of a wide range of issues and concerns. To achieve this goal of broad and inclusive engagement, the contents of architectural education curricula in schools need restructuring to reflect contemporary social, environmental and economic issues.

The architect teacher and students require increasingly new knowledge base and skill sets to access, distil, interpret and proactively act upon social, environmental and economic indicators. For instance, there is a need for the inclusion of anthropology of architecture in architectural curriculum to equip students with sufficient skills to appreciate the beliefs, value systems and way of life of the respective communities and societies they work with, (Oliver, 2008), and architectural Psychology to properly integrate specific predilections of clients and other property users in design commissions. In order to reconnect with present day society and take up the leadership position in the building industry, the architect needs to first of all re-unite with the society by offering "unique', 'tangible' and 'value-laden' services that set it apart from the other professions in the construction industry. To achieve this, the architect needs to understand the society; its belief, values and aspirations and then act as an advocate, facilitator and catalyst to environmental change and development. The skills required for this social engagement are firmly embedded in the social science domain and fall outside the traditional scope of subjects and skill presently taught in Nigerian schools of architecture. Architectural education therefore needs to become broader to include non-traditional subject areas that will prepare the architects for more roles in social engagement and advocacy which are vital skill sets for a rapidly changing society as Nigeria.

The rate of environmental change especially with regards to climate change and resource depletion requires a new approach to architectural education. There is an urgent need for the integration of ecological and environmental understanding into architectural curriculum especially in design.

Another area requiring immediate realignment of thought is the isolation of architecture from the wider urban context. Buildings are not 'islands' but form part of a dynamic urban system and it is important that architecture education reflects this wider connection and integration with the urban system. Architectural education needs to be more integrative by encouraging multi-disciplinary studies and design schemes involving students of architecture, urban planning, engineering and other disciplines whose activities orbit the built environment. Such studies allow for the understanding of the interconnectivity of the activities and products of the different professions providing necessary foundations for collaborations and less acrimonious relationship currently existing between the architect and some other professionals in the built environment. Collaboration rather than competition offers a more viable route to a sustainable development of the Nigerian environment in general and the building industry in particular.

The education system should enable students to anticipate changes in future demographics at the micro and macro levels and how these affect designs. Similarly, appreciation of facilities maintenance and management issues as well as new ways of living and conducting business should form key elements of architectural education and the design decision process. For instance, in the design of family homes architecture students and indeed architects should be aware of and provide for the client' current needs while anticipating and providing for the future needs and circumstances of the clients several decades later, when all the children would have left the home and the client is 'old' and 'retired'. In other words, architectural education should aim at equipping future architects to be proactive; taking into account current and future economic, social and environmental conditions rather than being reactive as appears to be the case at present. A general conclusion that can be drawn from the foregoing arguments is that architectural education should aim at nurturing multi-skills that equip the future architects with knowledge and skills for effective and efficient participation in the increasingly multi-disciplinary built environment.

Pedagogical Approach to Architectural Education

Evidence from practitioners suggest an increasing concern over the isolation of architecture students from real life human needs and issues as well as limited knowledge of the practical skills of building construction and services. Yet many of these students boast of very good grades in the different subjects and design studio.

The nature of the teacher-student relationship in the schools of architecture has an impact on the outcome of the education process. The methods of teaching in the Nigerian schools of architecture are based on traditional teacher-centred strategies which have instruction at the heart of education. The time has come for a shift in practice from this conventional strategy of instruction to an active student-centred learning strategy. There is a need for a shift in thinking from just what students are taught to the how and why they are taught. Under the current practice, the teacher serves "as the centre of knowledge, directing the learning process and controlling students' access to information. Under this approach lower order thinking skills (e.g. recall, identify, define) that enable students pass summative assessments are the major learning outcomes, (Napoli, 2004). On the other hand, in a student-centred approach, emphasis is on the students' understanding of concepts, their abilities to ask questions and solve problems for themselves as well as their ability to search for information and be critical thinkers. Under this approach the students' previous experiences and perceptual frameworks are taken into account in the learning environment. The focus of student centred learning therefore is to create independent learners with a focus on learning outcomes that encourage cognitively deeper and richer learning experiences.

Learning outcome from the student centred learning approach usually include higher order thinking and informative skills like problem solving, access, organization, interpretation and communication of knowledge. These are the general skill sets which the architects require in the current global 'knowledge economy'.

It is important in this age of globalization and free flow of information that various experiences (not just the tutors) are brought into play to enrich the architectural education process. The adoption of a new approach to teaching and learning will by no means be a straight forward or indeed an easy feat. There are existing institutional and cultural barriers that need to be overcome in order that such new approaches take root in our schools of architecture. For instance how will lecturers react to a new system where they are no longer at the 'driving seat' of knowledge in a society where age and experience are held very high; how will students previously used to being fed information react to the new challenges of sourcing information and co-piloting their learning experience? How will the new approach fit in within existing and established practices in the broader higher education system? Do the infrastructures (e.g. free internet access) exist within the education system to encourage active student participation in the learning process? While these fundamental challenges exist, a gradual and contextual application of the principles of student-centred leaning is proposed for a successful and smooth transition especially in schools of architecture.

The adoption of the student centred approach will also require changes in the assessment methods for design project and courses and will place significant

responsibilities on staff for determining appropriate learning outcomes, assessment and evaluation techniques that support the students as independent learners (The University of Adelaide, Australia, 2006). This will invariably require further re-training of staff and raises the question of staff continued professional development opportunities in the Nigerian architectural education system and the institutional capacities.

Vehicles for Architectural Education: Evidence Based Education

Several methods have been upheld as increasing the students' interaction with ideas and information beyond lecturers in a student centred learning environment. Notable among these are task and problem centred workshops and seminars. In architecture however, 'Live Projects' and case study research have provided very powerful tools for this interaction as well as for the social grounding of architectural education. These vehicles of learning are discussed below as very potent tools for student interaction and learning under the proposed pedagogical paradigm.

As an alternative to the traditional model of studio learning, 'Live Projects' is a method of engagement in studio education that offers a community based approach to learning. It bridges the isolation of architecture students from real contexts and provides for a more expansive and socially grounded architectural education. "The live projects involve students working in groups with community, regional or national organizations. The projects have to be 'live' (i.e. a real client with a real problem) and are done in real time, with a defined end result- often a report or presentation to the client group, Live projects reject the separation between real and theoretical, practice and education and allow the student to be creative within constraints". (Chiles & Till, 2009)

Working directly with real clients in real communities, helps students establish value sets that are directly related to the needs of the society, Some of the learning outcomes recorded by some schools of architecture where 'Live Projects' have been running for some years include collaborative skills among the students, participatory and advocacy practice skills, improved communication skills as well as the overall confidence which the students seem to have acquired through dealing with clients and communities in a non threatening environment. Additionally such projects have the potential to instill care for the society in the students while help them appreciate the full impacts of their design decisions. They also provide socially relevant agenda for the students to pursue at the end of their training.

Some architectural educators however argue that some of these real life constraints limit creativity among students. On the contrary, it is often said that 'necessity is the mother of invention'; in other words real creativity flourishes in the context of demanding constraints. It is therefore imperative that our education system

trains the students to be reflective thinkers; dwelling extensively on real life issues as the bases for intuitive or creative thinking.

Live Projects reports and presentations provide the schools of architecture with rich archives of fresh ideas and community based projects. This repository of fresh ideas in the schools shall provide sufficient materials for the profession in Nigeria to re-unite with the society through community based programmes and projects. Schools of architecture may therefore float functional consultancy services to continuously provide jobs for the live project exercises.

Case study research, experimentation and Post Occupancy Evaluations (POE) also provide very powerful tools that enable the students make the all important intuitive connection between theory and practice. Very often, students derive their design strategies by studying case studies on the glossy pages of foreign magazines. Quite often very little direct benefits are derived from such exercises. Case studies enable a deeper understanding of complexities of building including technical issues like lighting, ventilation and thermal comfort that from the basis for design hypothesis. Case study research also fosters a closer relationship between the designers and the finished product thus enhancing the overall experimental learning experience. The particular learning outcomes usually associated with cases study research include observation & recording skills, evidence/data collections, analysis, explanation and comprehension of the building in use. Where such studies include occupant surveys, they enhance the students' awareness of the human environment interface.

The potentials of these tools are not fully exploited in our current architectural education system. It is suggested hereby that case study research becomes key parts of the design and technology modules of the curriculum.

Conclusion

The future requires architects that are educated generalists, strategic thinkers, versatile in knowledge and skills that are able to create environments that explore and reinforce sustainable life styles. These architects should be able to link design with ever changing political, economic, social and technological demands of the Nigerian society. The design process end products ought to be socially acceptable, functional, visually pleasant, and environmentally sound with good value for money. To achieve these goals, architectural education needs to be broad based with a greater integration of non traditional subject domains. These changes are necessary in the approaches to the delivery of architectural education. The approaches put forward in this paper seek to address the current problems observed in architectural education. It is concluded that evidence based case study research, experimentation, Post Occupancy Evaluations and

'Live Projects' be more firmly embedded in the design studio processes especially at the higher levels of study in architecture.

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