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TOWARDS SUSTAINABLE ARCHITECTURAL EDUCATION IN NIGERIA: CHALLENGES AND POTENTIALS - A REVIEW

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ABSTRACT

Purpose: This study is a follow up from earlier research, which acknowledged the lack of sustainable curricula in some Nigerian universities and particularly for architectural education. The paradigm shift to sustainable built environment requires a prescriptive transformation of the architectural education in Nigeria. Architecture is a multifaceted discipline and so is the sustainability agenda. This study is an attempt to resound the importance of sustainable education particularly for development in the built environment. Given that, the architectural profession has a supervisory role in the construction industry and has the capacity to re-orient other professions within its sector.
Design/methodology/approach: This theoretical discourse presents; the challenges, potentials and the possible ways to advance sustainable architectural education in Nigeria. Additionally, this discourse contributes to a better understanding of integrating sustainability development into education and the treatise in itself would serve as a support document for policy formulation.
Findings: The main finding is that sustainable education is the most important medium required to transform, re-orientate and to build the capacity of future and current built environment practitioners.
Research limitations/implications: The study is limited to the Nigerian context underpinned by a theoretical discourse. Therefore, other methodologies are recommended for future studies.
Originality/value: The treatise recommends integrating sustainable education into architectural education in order to strengthen and advance the future of sustainable architectural practices amongst the future practitioners in Nigeria.

Keywords: Architecture; Nigeria; sustainable education; sustainable development

1. INTRODUCTION

Nigeria has a rapid population growth rate and the country is also the most populous black nation. It is the rapid population growth that has pushed upwards the demand for

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housing and other infrastructural development (Akunnaya and Adedapo, 2014; Cartalis et al., 2016). The country's construction sector has been noted to have a significant infrastructural and economic impact, and determines the direction of the built environment like with many developing countries (Wibowo, 2012). Yet the sustainable developmental activities of the Nigerian built environment practitioners are largely uncertain (Emuze, Mgudlwa, and Botha, 2013; Allu, 2015a). The role of designing buildings and the way any development of is processed has since shifted from the traditional to the globally accepted sustainable trend because of the environmental challenges. Furthermore, Kibert (2016) opined that the only way to promote environmental sustainability is to ensure that built environment practices are sustainably oriented and the architect's profession is central (Grierson and Moultrie, 2011). This therefore, makes the role of the architectural professional pivotal and relevant to reorient and direct the practices within the built environment sector towards sustainability. Hence, this background motivates the focus of this study.

The relationship between sustainable development and architecture became a global concern and the demand for sustainable design has increasingly been sought in order to ensure the sustainability of the built environment, particularly through education for sustainability. Thus, the role of education for sustainability has increasingly gained more attention (Altomonte, 2012; Allu, 2016). The current focus is, sustainable architectural education through the integration of sustainability into the curriculum of architectural education (Altomonte, 2012; Iulo, Gorby, Poerschke, Kalisperis, and Woollen, 2013; O'Rafferty, Curtis and O'Connor, 2014; Álvarez, Lee, Park, and Rieh, 2016). As such, the years 2005 to 2014 was declared the decade of education for sustainable development, by United Nations (Connell and Kozar, 2012). Furthermore, the post declaration Monitoring and Evaluation Report suggested that, laudable successes were recorded globally (UN Decade of Education for Sustainable Development (2005-2014) Final Report (2014). Yet there are still pockets of countries with non-compliance status and Nigerian has been noted to be one of such (Allu, 2015b, 2016).

This study's theoretical underpins has also, an observatory discourse in line with the obvious reality of what is truly obtainable and worrisome within the study's context. Consequently, this review aims at presenting highlights that point towards advancing sustainable architectural education in Nigeria. The study therefore, presents a live problem as a challenge, propels the way forward as its potentials and opportunity for the Nigerian and other similar context elsewhere. Furthermore, the expected outcomes and recommendations are enumerated. Thus, the paper presents its theoretical discourse in this sequence in order to harmonise the arguments therein.

2. THE DISCOURSE

This section reviews the theoretical underpins for sustainable architecture, the agenda for Education for Sustainable Development (ESD), the potentials and challenges for sustainable architectural education. In view of the focus of this theoretical discourse a robust literature review on historical background to these underpins are beyond the scope of this presentation. Rather the underpinning highlights are presented to support the arguments of the subject of this discourse.

2.1. Sustainable architecture

The premise, on which this discourse is hinged, is that sustainable architecture is a conscious attempt for an energy and ecological approaches that sustainably strategized to the design processes of the built environment and not just to reduce the use of natural resources. The paradigm shift towards a sustainable built environment begins with the transformation of the architectural profession (Barth and Timm, 2011) and the design process (Grierson and Moultrie, 2011). Sustainable architectural architecture has thus, becomes the means to sustainable architecture.

2.2 Education for sustainable development

Education for Sustainable Development (ESD) came as an offshoot of international efforts and commitment to ensure a sustainable future for all. In every sector of human activities many strategies have been identified and for the advancement of sustainability within the built environment; education has been widely recognised as the most important factor for achieving sustainable development (Krizek et al, 2011; UN 2016) with "ESD as the key action" (Alvarez et al., 2016). However, it is equally important that the educators are also knowledgeable and understand fully the role educator have towards ensuring ESD (León-Fernández Domínguez-Vilches, 2015).

According to Cebrian, Marcus and Humphris (2014), Sustainability in Higher Education (HE) is very important and has had an increasing global support. It is apparent that the Nigerian HE should not be seen to be unconcern, but to join the quest for a global sustainable concern.

The introduction of ESD is not to be seen as a temporary measure but as a cultural and structural change to what has been the practice (Tilbury, 2012). This change must introduce approaches that improves the curriculum, the campus day to day operations and to strategize its research output and actions to have a positive impact on the surrounding community (Barth and Timm, 2011; Müller-Christa et al., 2014). In furtherance to these, the development of a sustainable vision for any University requires clearly defined; mission, objectives, strategies for the implementation of a sustainable curriculum and research (Cebrian, Marcus and Humphris, (2014). Also to the strategy need to reach out to all stakeholders who are relevant, the University itself and to the student during and in their future practices (Velazquez, Munguia, Platt, and Taddei, 2006).

2.3 The potentials of ESD in advancing sustainable architecture

It is clear from the preceding sections that ESD is increasingly being acknowledged as the means to sustainability and with significant potentials as opportunities for advancing sustainable architecture.

Education is the main channel for disseminating information, having the power to influence and re-orientate the mind-set of its recipients (Allu, 2016). The curricula of a university system or Higher Education (HE) can be controlled to suit a purpose that would have an impact on; present and future practices and serve as an agent to the society (Cockrell, 2010; Thomas and Day, 2014). Also, the premise for the decade or sustainable education was aimed at achieving global sustainability through education as the most effective means. This assertion was informed from the UNESCO Report quoted below;

> *...seeks to integrate the principles, values, and practices of sustainable development into all aspects of education and learning, in order to address the*

> *social, economic, cultural and environmental problems we face in the 21st century.* (UNESCO, 2010 p.4)

Suffice to note that environmental challenges have become a common reoccurring event in Nigeria like many other part of the world (Ojuibo, 2010; Allu, 2014) and anthropogenic activities mostly from the built environment have been identified as a major cause of these challenges and problems (Dixon, 2010). Therefore, the need for practices within the built environment to act sustainably is important (UNESCO, 2010; Capuzocca and Sarni, 2012), and this can be guided through sustainable education (Zuo, Leonard and Beach, 2010; Leslie, 2012). While other researchers have argued that sustainable education for the built environment professionals are most effective at the university level (Lukeman and Glavic, 2017; Leal and Manolas 2012, Allu, 2016). Thus, the necessity to pursue sustainable education and training for these professionals.

Consequently, in line with the aforementioned argument western universities have shown their commitment by ensuring that all environment related courses have sustainable education integrated into their curricula (Barth and Timon 2011; Lazano, Lukman, Lozano, Huisingh, and Lambrechts, 2011). Furthermore, architectural education in particular has been given much commitment in this regard (Zuo et al., 2010; Leslie, 2012). Following this commitment, it has been observed that, practices of the beneficiaries have greatly improved over those without sustainable education training. This is because the latter has value added training, increased capacity to apply acquired skills and better innovative applications to their practices (Capuzocca and Sarni, 2012; Kamal and Asmus 2013).

In another similar study, Demirkan and Afacan (2012) noted that sustainable education bridges that gap between taught courses and design studio courses. The UN Final Report (2014) on the scorecard on the Declaration of the Decade of sustainable education revealed that architectural education curriculum has been adapted successfully by many western universities. Yet, the story is not the same for Nigeria.

Sustainable development provides the ability for proactive productive solutions to environmental complexes in its application and practices. The application of sustainability offers HE as a catalytic systematic change for development is a necessity. Adomssent, Godemann, and Michelsen (2007) also viewed sustainable development education as an education that provide specific and flexible solutions seeking agendas for environmental protection through the education. Other advantages of sustainable education are:

Firstly, universities are to guide, to transform, disseminate and apply the principles for sustainability within its practices and to influence its surrounding communities (Sterling, 2004; Kehm, 2004; Kamal and Asmus 2013). Secondly, integrating Sustainable Development Education encourages diversity, links and interactions of various dimensions for progressive learning processes for the future professionals. Accordingly, the evaluation study conducted in Schools of Architecture in Turkey, students who were guided to reorient and focus on sustainable solutions were observed to ready to transfer their knowledge to their studio design course, tagged ‘applied studio’ and are well able to perform with the environmental challenges and their professional expectations in the labour market (Ertas and Tas, 2015). Otherwise, the students would have a traditional architectural education, a dis-jointed studio course from other taught course and are likely to perform as expected with their pairs from other Schools of Architecture where sustainable ESD was part of their training.

Thirdly, “Rethinking Universities" is a slogan used for commitment of such Universities to the sustainability agenda. In Africa, Central University of Technology (CUT) which is considered a small University is also a member of this commitment amongst other

universities. This suggest that, it is not just a Western ideology and that it is possible in Africa.

Fourthly, sustainable education at the universities help to address the contradictory environmental demands and thus, sustainably taking is considered a productive integration that addresses conflicting demands and purposes (Krucken, 2011).

Finally, the universities are seen as a change agent (Finlay and Massey, 2012) and a catalyst for sustainable actions rather than those that block positive change (Brennan et al., (2004).

Gomera (2011) gave a sound reminder that people within the university community would require the knowledge and understanding of sustainability and the consequences of unsustainable actions, before they are able to change their attitude and influence others positively. As a follow-up to this assertion by Gomera (2011), a qualitative study on sustainability and architectural education carried out by Allu (2014a) has established that there is limited knowledge of sustainability and its application amongst the interviewees who participated in the study although, they were architectural educators. This revelation has led this discourse to further uncover what other challenges are likely to slow down the advancement of sustainable architectural education in Nigeria.

2.4 Challenges for ESD in advancing sustainable architecture

It has long been established that, Architecture is a multidisciplinary profession. The challenges of the environment are also complex and as such, the strategies of surmounting these complexities are not without challenges. Musselin (2007), Adomsent, Godemann, and Michelsen (2007) and Walls and Carovan (2016) assert that any university whose curriculum does not integrate sustainable education is bound to suffer from marginalization and greater competition from compliant universities, unequal international developmental platforms, backwardness, poorly defined solution processes, least diversified norms and values and difficulty in grassy new technologies (Adomssent and Michelson 2006). These negative outcomes should be of great concern to the Nigerian Universities affected by this lack of commitment in the training of its built environment professionals.

Education for sustainability has increasingly influenced all forms of disciplines; this sustainable agenda caters for the future and therefore, an all-inclusive strategy for sustainable actions. This as was rightly defined by the WCED (1987) as a strategy to promote sustainable solutions for the present and with a consciousness for the needs of the future generations.

The challenges of sustainability in general is that of a seemly non-clarity in the definition of what sustainability is and what its concepts are for applications (Altomonte, 2012). This study concluded that the inherent lack of conceptual clarity, within the realm of education exposes its lapses and thus, suggesting a danger that whatever emerges is essentially reliant on a superficial consensus predicated upon the potentially prescriptive aims of education for sustainability.

Several scholars' perceptions on sustainability education in the architectural education also suggest that a clear understanding and articulation of sustainability is foremost and the premise for design solutions must be prescriptive, ethical, value adding, motivational and to have a sustainable approach (Graham et al., 2007; Graham, 2008; Timmer and Mercalte, 2009; Altomonte, 2012).

In a mixed concurrent research, which was conducted by Allu (2014), amongst the private, public and built environment professionals in the academics Nigeria, revealed that about 51% did not even understand the workings of sustainability. Thus, agreeing with the

earlier researchers and validating Altomonte (2012) whose conclusion points to the fact that sustainable education training may suffer a setback when even the educator/trainers are not well knowledgeable themselves on what sustainability entails.

Additionally, the challenge of motivating the Lecturers and students to readily adopt the shift for sustainable approaches to architectural design may be difficult (Altomento, 2012), for change does not always come easy. Yet, the sustainable agenda is not a matter of option in the face of the environmental challenges being experienced globally. Nigeria is not an exception to the many environmental catastrophes that may be mitigated and adapted sustainably (IPCC, 2007; Ojuibo 2010; Ebohon et al., 2013; Allu, 2014).

A major challenge for education in developing countries has been observed to be in the arena of political incorrectness and financial limitations (Adomssent, Godemann, and Michelsen 2007). Thus, posing a major challenge particularly for the architecture students, their educator and the professionals already practicing.

Although the environmental challenges are global, the need to develop specific curricula for contextual peculiarities is eminent. Case studies were carried out on developing countries in Asia and India were Kishani and Ng (2011) in their study on educating the Architect suggested that the integration of sustainable taught courses and the design studio approaches and processes technique is relevant for harmonising knowledge and its application for the architectural training.

The challenge therefore, for the Universities in Nigeria is to agree firstly, to take up the commitment for sustainable training and education. Secondly, to agree on a definite process that encompasses a pedagogical approach that adds value to architectural education and build the capacity of architectural educators. These value-adding processes are achievable by adopting relevant case studies and agreed consensus on a specific contextual Nigerian sustainable architectural education curriculum formulation.

3. CONCLUSION AND RECOMMENDATIONS

This study supports the ESD agenda because it leads to sustainability of the built environment by advancing sustainable architecture. Advancing sustainable architecture requires the appropriate training, tools, techniques and the reorientation of the trainees and practitioners to consciously adapt and apply processes that are sustainable to their design. This makes it a necessity for sustainable compliant curricula for the Nigerian architectural education. Thus, the paradigm shift for a sustainable prescribed design solution requires a proactive transformation of the Nigerian architectural education curriculum. The treatise discourse also revealed that the commitment to ensure sustainable actions, which are taken through sustainable education, is not to be taken lightly to ensure that the advancement of sustainable architecture is not an option.

As much as the onus of ensuring sustainable architectural education is on the educators and educational system, the government, legislation and the financial commitment are also necessary. However, role of the architectural educator is to equip and prepare the students with the right (sustainable) training, thinking and tools for sustainable holistic practice.

This study recommends that the architectural educators take the challenge to support the advancement of sustainable architecture through supporting the integration of ESD into the curricula of architectural education. Where it is obtainable, it is important to re-evaluate and upgrade where necessary and to encourage continuous professional development in this regard. This discourse also intends to spur researchers to contribute to the arguments therein for possible legislation and adoption by the Nigerian Institute of Architects (NIA) for possible regulation by the Architects' Registration Council of Nigeria (ARCON).

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