

# TOWARDS A MORE SUSTAINABLE ARCHITECTURAL CURRICULUM OF HIGHER INSTITUTIONS IN NIGERIA

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## ABSTRACT

*The role of higher education in creating a more environmentally sustainable future is irrefutable. However, since the inception of sustainability in 1989 through the world commission on environment and development (Usman, Dauda and Shitufa, 2008), there has not been any clear evidence of definite framework in training the architectural educators to be environmentally literate in Nigeria. The descriptive survey research method was used for the study to examine the level of awareness and training background of Architectural educators on sustainability and sustainability content in studio project and related courses. Questionnaire formed the basic instrument for data collection while the data obtained were analyzed using frequency count and percentage. The study find out that the level of awareness on sustainability issues among educators was low. Based on the findings, the study, recommended the introduction of sustainability in our curriculum, organization of more training programmes related to sustainability and revision of existing curricula to inculcate sustainability awareness in the minds of future Architects.*

**Keywords:** *Sustainability, Architectural curriculum, higher institution, Nigeria*

## INTRODUCTION

The importance of teaching sustainable design to architects is conclusive. Agenda 21, the United Nations Programme of action from Rio de Janeiro, identifies environmental education as one of the catalyst for sustainable development. There is a growing recognition that sustainable development policies, plans and actions have more chance of implementation when they are supported by an educated, informed public (Zalina and Mohd, 2006). Perhaps, this is why Bayo (2007) suggested that examining the entire curriculum or the educational programmes of the schools of architecture in Nigeria is a useful way of gaining insight into the philosophies, which rule architectural education and practice of the profession. One criterion for introducing sustainability into a programme is to fully integrate the subject in totality, which requires that the complete curriculum be reviewed and revised (James, 2003). The need to introduce issues of sustainability into architectural curricula has become critically important, as the architect play a vital role in the creation of built environment. It is imperative therefore for those students, who are future architects to be aware of how their attitudes, behaviour and actions will impede the future

natural environment. There can be no responsible design without responsible designer (Zalina and Mohd, 2006). Hence design education should be redirected to the development of an ethical designer, who could think and radically come up with a design that delivers environmental problems. So how has the Nigerian architectural education community responded to this challenge for sustainable solutions? Are academics adequately informed on strategies on environmentally oriented building development? Are students provided with opportunities for imagining solutions that foster sustainable behaviours of building design? Are environmental aspects of design considered in assessing students work? These and other related issues are the focus of this paper.

## METHODOLOGY

The descriptive survey research method was used for the study and the population includes respondents from higher institutions of learning that offer degrees, post graduates degrees, diplomas, and higher diplomas in architecture, which includes three Federal Universities, five federal polytechnics, and one state polytechnic, as listed below:

1. Abubakar Tafawa Balewa University, Bauchi
2. Federal University of Technology, Yola
3. University of Jos
4. Federal Polytechnic Bauchi
5. Kaduna Polytechnic, Kaduna
6. Federal polytechnic Idah
7. Federal Polytechnic Mubi
8. Federal Polytechnic Edeh
9. Ramat Polytechnic, Maiduguri

The first five schools were represented by ten respondents each. Federal Polytechnic Idah was represented by six respondents while the rest were represented by five respondents each. The selection of the respondents in each of the institutions was done through random sampling. The questionnaire was structured to establish the training background of educators with regard to sustainability, to seek their views on sustainable design approach and ascertain their level of awareness as far as sustainability in architecture is concerned.

The second part of the questionnaire was aimed at identifying obstacles in promoting sustainability in architectural education; and to suggest ways that can be adopted to guide and support educators to enhance the delivery of sustainability in educating future architects in Nigeria. The data obtained were analyzed using frequency counts and percentage

## RESULTS AND DISCUSSION

**Sustainability training among educators:** It is logical for educators to be adequately informed and knowledgeable in sustainability for it to be successfully embedded in architectural education. This section examines issues of training initiatives among

educators with regard to sustainability knowledge. Out of the respondents, 18.3% only were female, while the remaining 81.7% were male. This apparent discrepancy could be attributed to problems of female gender in acquiring higher level of education and professional attainment via home management attachment according to Adeoye, Akangbe and Ajayi (2008).

**Table 1:** Percentage of respondent’s main source of information on sustainability issues

Source of Information	Frequency	Percentage
Course training	8	11.3
Media/Articles	19	26.7
Personal initiatives (internet)	26	36.6
Conferences/Workshops	18	25.4
<b>Total</b>	<b>71</b>	<b>100</b>

**Source:** Authors field survey, 2010.

Attending course/training is still not the prevailing means of increasing respondent’s knowledge on sustainability, as this account for only a negligible percentage of the total respondents. Most respondents agreed that they obtain knowledge on sustainability issues through personal initiatives via internet browsing. It is therefore imperative for the government and the institutions to organize more continuous and systematic training programmes to increase the sustainability literacy among architectural educators.

**Table 2:** Level of concern/awareness

Level of Concern	Frequency	Percentage
High	21	29.6
Moderate	5	21.1
Little	35	49.3
Not at all	NIL	NIL
<b>Total</b>	<b>71</b>	<b>100</b>

**Source:** Authors field survey, 2010.

**Level of concern/awareness among educators:** On investigating the level of concern with sustainability issues among educators, the result shows that large percentage of respondents have little concern/awareness on the subject matter as indicated on table 2 below. Therefore the need to increase the level of sustainability awareness among educators becomes imperative. A significant percentage of the respondents answered “No” with regards to whether sustainability is being taught in respondents institutions. The reason being that sustainability is not in the curriculum. The remaining respondents were of the positive view on the issue. Stating that though it was not taught as a course on its own, yet in related courses such as Climatology, Landscape Architecture, Site planning and Studio design. Respondents suggested orientation and awareness should be given along with the courses mentioned above, because not all educators are even aware of its presence.

**Table 3: Sustainable design strategies in studio**

Elements	High	Moderate	Low	Not at all
Natural ventilation	42(59.2%)	20(28.2%)	9(12.6%)	NIL
Passive solar design	31(43.7%)	18(25.3%)	14(19.7%)	8(11.3%)
Active solar design	10(14.1%)	15(21.1%)	26(36.6%)	20(28.2%)
Preservation on site	28(39.4%)	18(25.4%)	18(25.4%)	7(9.9%)
Low energy design	NIL	43(60.6%)	15(21.1%)	13(18.3%)
Low maint. mats	10(14.1%)	36(50.6%)	20(28.2%)	5(7.1%)
Waste recycle	NIL	20(28.2%)	20(28.2%)	31(43.6%)

Source: Authors field survey, 2010.

**Sustainability in studio design:** Upon investigation on sustainable design strategies implemented in studio design, with emphasis on some design elements, result shows that top three strategies are “exploitation of natural ventilation”, “passive solar design” that is allowing the buildings to harness the energy of the sun efficiently e.g orientation and shading, and “preservation of natural elements on site (trees, slopes)”. Meanwhile the bottom three strategies are “waste recycle”, “low energy design” and “active solar design”. This finding indicates that sustainable design strategies implemented in studio are more concerned with energy and environmental issues.

**Table 4: Sustainability in non studio**

Courses	Frequency	Percentage
Landscape Architecture	41	57.7%
Intro. to sustainable environment	7	9.9%
Sustainability & green Architecture	5	7.0%
Others	18	25.5%
<b>Total</b>	<b>71</b>	<b>100%</b>

Source: Authors field survey, 2010

**Other courses that embraced sustainability:** Landscape architecture is the most cited course as having embraced sustainability by respondents. ‘Introduction to sustainable environment’ and ‘sustainability & green architecture’ respectively accounted for an insignificant percentage of the respondents, while the remaining account for courses such: Climatology and site planning.

**Table 5: Barriers/Limitations**

Barrier	Frequency	Percentage
Level of awareness	22	31
Inadequacy in curriculum	26	36.6
Lack of concern	13	18.3
Others	10	14.1
<b>Total</b>	<b>71</b>	<b>100</b>

Source: Authors field survey, 2010

**Limitations/barriers to sustainability in Architecture:** The most cited barrier by respondents is curriculum factor, i.e. the absence of sustainability in the curriculum. Although some respondents referred to few courses, as having a mere statement of intention for sustainability in them, yet it grossly inadequate. Another most cited barrier is the level of awareness. Under this category are lack of exposure to knowledge; lack of training/education; ignorance and negative attitude toward sustainability, and lack of interest. Other factors mentioned by respondents include: public, students and government. Respondents feel that lack of agencies responsible for promoting the issue is among the barriers in promoting sustainability in architectural education.

## CONCLUSION AND RECOMMENDATIONS

For sustainability to succeed, it must become the binding element of the architectural education practice. It must not be strongly identified with a particular area of architecture such as environmental science. Most of the suggestions recommend the incorporation of sustainability in all architecture related courses. The respondents also suggested more “continuous educational programmes” i.e. seminar, conferences, training courses etc. to increase awareness among students and academics on issues of sustainability. In conclusion, it is believed that sustainable building design has the potential to become a standard practice if the education industry continues to find ways to incorporate some of the recommendations outlined in this paper. It is hoped that the relevant agencies and organizations could implement these recommendations as a guide to promoting sustainability in architectural education in Nigeria. Based on the identified limiting factors to sustainability, it was recommended that there should be new vision that guides the entire policy formulation, philosophy, methodology and content development of courses. More training programme to increase the sustainability literacy among architectural educators should be organized. The level of awareness among educators and the general public on sustainability as a matter of urgency has to be increased. The existing curriculum should be revised without much delay to fully embrace sustainable design as well as inculcate sustainability awareness among students.

There is need to emphasize funding by institutions and research funding agencies for researches which address sustainability issues, and usage of building materials that are environmentally friendly. Courses like: “Introduction to sustainable environment”, “Climate change” and “Sustainability and green architecture” should be introduced. For studio design projects, alterations and redevelopment of existing buildings should be encouraged rather than new design proposals in order to tackle the issues of environmental degradations. There should be conference of educators on sustainability issues nationwide.

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