

TEACHING A CONVENTIONAL ARCH-DESIGN STUDIO

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ABSTRACT

Extensive exploration of literatures, stakeholders' statements, comments, debates and arguments etc from seminars, conferences, fora, meetings, telephone calls, email correspondences, etc are critically reviewed in this paper and are used to argue for improved ways and methods of architectural design education. Although there are similarities in the curricula of training architects all over the world, but educators go about it in their own convenient and suitable ways and styles. Collaboration of academic and practicing architects' participation in teaching of the arch-design studio and integrated course work with other disciplines are not new in training of architects, this review goes further to argue for a selection criteria and more integration especially of related professionals in the building industry in teaching the arch-design studio. Training to think globally and act locally (adaptable) hence sustainability and creativity are taken as the central themes for effective delivery of arch-design education. The topic is very relevant and timely as arch-educators and other stakeholders are of the opinion that something has to be done to improve the ways and methods of training architects, especially the teaching of the arch-design studio. The paper uses the theoretical under-pinnings of collaboration, integration and adaptability to argue for or against the ways and methods of teaching the arch-design studio and recommends the participants that will be making meaningful and positive contributions to the effective teaching of the arch-design studio. That is more of team work (integration and collaboration) but based on selection process of who should participate in the teaching and that is adaptable to the people and the environment.

Keywords: Conventional, sustainability/creativity, arch-design studio, education.

INTRODUCTION

This is an exploratory review from debates in literature and comments by the stakeholders to examine and improve on the education of the architects for sustainability and creativity. It highlights and argues for ways and methods of the teaching contributions of the participants' (lecturers, full practising architects, other building practitioners, users, and manufacturers) to the architectural design studio. This review therefore contains the approach to achieving the research aim and objectives as stated below.

Aim of Research

The main aim of the research is to explore through literature (conferences, seminars, fora, meetings, etc), email responses and telephone calls from stakeholders the contribution to education of architects by the participants—academics, practitioners, governments, and institutions, in order to gain clearer understanding of their impacts on holistic students' experience; with a view to recommend or propose the ways and methods in improving the education of the architects.

Objectives

To achieve the above aim, the research employs the following sets of objectives:

- To explore the various debates from literatures and others on the education of architects in order to obtain ways and methods considered important to conventional education of architects;
- To assess the impacts of the participants teaching contributions to architectural design studio based on appropriate theoretical underpinnings.
- To examine the involvement and contributions of the various participants in the education of the architects; and
- To argue for and recommend the best or improved ways and methods of educating the architects.

Theoretical Approach for the Research

The research adopts collaborative, integrative and adaptive approaches as core elements of educating architects.

(a) Collaboration

Specialists in collaborative design define it as, to work together with a shared goal (Kvan, 2001, 2001). Therefore practitioners are frequently

invited to participate in the teaching of the design studio as this will enhance and speed up rate of gaining knowledge and work.

Kvan (2012) argues for designs and buildings that celebrate themselves, inspire and enrich the users as a result of collaborative and inter-disciplinary approach. Collaborative design is described as process of stimulating each other to contribute to the design task. Therefore participants act towards mutual understanding and maximizing outcomes that satisfy not only their respective goals, but also those of other participants (Achten, 2009; Trocka-Leszczynska, 2009).

(b) Integration

Egan (2002) emphasises the great importance of integrated teams to secure a culture of continuous improvement. 'The best architectural partnerships—like that of Adler and Sullivan—meld people with different talents and this should be true for architectural education' (Mallgrave, 2010: 218). Also in the Windsor forum of 2004, it debates about the need for providing an integrated architectural design education with respect to health, safety and welfare. The document defines the broad role of architecture not only as the design of building and their interiors to fulfil the wishes of clients, but also to helping foster, through design, more wholesome neighbourhoods as Taylor (1989) had emphasized that architecture lends itself well to integrated learning because it so well subsumes math, science and art.

(c) Adaptability

UIA/UNESCO (2003) stresses the ultimate goal of architectural education, that it must be an adaptable one, with respect to societal and environmental needs and innovation in the design process. Globally, some authors of architectural design education in this past two decades have argue the need for reform to incorporate the needs of society and the natural environment, and this could be referred to as the architecture of geography.

Background: Education of Architects

The Ecole des Beaux Arts in France started the idea of the arch-design education in the 18th century. It had a kind of teaching; theory in the classroom and design in the ateliers (studios). It provided academic architectural training and was open to students of any nationality. It attracted many architects from the US in the 19th and early 20th centuries (Conway and Roenisch, 2005), and became synonymous with architectural education in France, England and

America (Moffett *et al.*, 2003). This system continued into the 20th century, initially within the offices of architects; the atelier of Le Corbusier, and at later stage within schools of art and design, and more recently within schools of architecture. The design studio is the melting pot and therefore the core of the education of architects (Charalambous and Hadjisoteriou, 2009). Al-Marzoky (1999) maintains the importance of the practising architects' participation in teaching of the design studio along with the academic tutors.

Kvan (2009) argues that students draw upon a variety of people to assist in the learning, not only the teacher, and Wang (2005) challenges training of professional architects that will result in creativity and therefore contends for collaborative and inter-disciplinary approaches as keys for successful transformation of teaching of the arch-design studio, and in-addition this study would want to add, and in adaptive (sustainable) manner. Salama and Wilkinson (2007) educates that the Beaux-Arts emerged in response to the value system of the time and the needs of the government in France. Then after World War 1 the Bauhaus model emerged (Germany) in response to the technological developments that resulted from the Industrial Revolution.

Significance of the Study

Many writers on architectural education have observed that the architectural design education is failing to meet the yearnings and needs of the users, societies, cultures, environments and technological developments as it was modelled after the European/American curriculum (the Beaux Arts and the Bauhaus). Therefore, there is a need to bridge this gap to enable architectural schools train students and young architects to relate properly to the society and develop appropriate architecture for our local and peculiar environment. This is the purpose of this review and various authors like (Salama, 2012, 2011, 2010; Olotuah, 2012, 2007, 2001; Adeyemi, 2012, 2000; etc and UIA/UNESCO, 2005, 2003, 2002, stress, argue and support such important venture.

Definition of Terms

(a) Conventional

This means something that is formed or adopted by convention (an assembly for framing or revising a constitution, curriculum, ways and methods, etc), and here the focal point is on sustainability and creativity in teaching the architectural design studio.

(b) Sustainability/Sustainable architectural design education

A sustainable architectural design education is that which meets the needs of the present without compromising the ability of future generations to meet their own needs (UIA/UNESCO, 2003). Sustainability now encompasses all of the varying facets of environmental sensitivity, as well as broader issues of health and well-being, and social responsibility (Al-Hassan, 2009). Al-Hassan (2009) went further to mean; architectural education that places considerations on buildings that are derivable with the local technologies and comfortable in their peculiar environment. The study is on critical review of the individual/collective derived ways and methods of teaching the arch-design studio for sustainability and creativity. Therefore Kelbaugh (2004) argues that sustainability is essentially about living within your means without mortgaging subsequent generations and acknowledges that sustainability prompts our market economy to think more about appropriate design education.

The Windsor forum of 2004, itemizes sustainability in four “Es” categories – Environment, Economy, Equity and Esthetic. Under Equity is Education where the research approaches are derived. In the Esthetic aspect; ‘if a building, landscape, or city is not beautiful, it will not be loved; and if it is not loved, it won’t be cared for. Thus, the love of esthetics in design culture is inextricably joined with the love of the environmentally sustainable, and this connection, is the key to greening the culture of both architectural education and practice’ (Windsor forum: 320).

And the UK Newcastle university institute for research on sustainability ‘NIReS’ (2012) simplifies the definition in just four words: Enough, for all, forever. ‘Enough’ means sufficiency, but not the wasteful excess which currently characterises society in Europe, North America and wealthy pockets of the developing world. It is when we ask ‘Enough of what?’ That the specific science and engineering issues arise: enough energy? enough food? enough shelter? enough water? and in this study, enough education for a sustainable architectural design training? That is efficient education for effective training. ‘For all’ refers not only to humans but also to other living beings in our shared ecosystems. ‘Forever’ signals respect for natural resource limitations, as well as the pursuit of justice between present and future generations. The ultimate objective of sustainability therefore according to Mebratu 1998, is the full integration of the natural, economic, and social systems.

Creativity – This is innovation, entrepreneurship, original and imaginative, is a lifelong experience (Windsor forum, 2004). Kowaltowski et al. (2010) agrees that expertise develops over time as a person matures. Asasoglu et al. (2010) vehemently argues that creativity should be the guiding concept in the revision of architectural education, despite its social and physical connotations and implications. Agreed creativity can not be learned perhaps, but it can certainly be encouraged and abetted (Medawar, 1969: 57) as cited in Asasoglu et al. (2010). Creativity is a concept of bringing forward new ideas and shunning repetition of unproductive ideas. Kowaltowski et al argues that although “cookie cutter” architecture is the symbol of all that is wrong with our present-day society, but the objectives of creativity in building design should not be originality for its own sake. Essential is the search for new ways of solving problems (functional, technical, social, urban and aesthetic) in intelligent and environmentally responsible ways.

Creativity is positive, ubiquitous human impulse, is putting together things to make order. Creativity therefore requires both remembering and temporarily forgetting or distorting precedents and memories to develop a genuinely creative voice (Forum, 2004). Though creativity can not be learnt but can be encouraged, motivated and fostered in arch-design education by the following - setting well defined problem limits, imposition of restrictions (building codes, site conditions, costs, etc), brainstorming/visual brainstorming, browsing, charette, excursions, focus groups, other peoples viewpoints, using crazy ideas, using experts, visualizing a goal, working with dreams and images, etc and giving students design tools such as drawing, CAD and model making (Kowaltowski et al., 2010).

(c) Education - Teaching and Learning

Education – Education, defined by Dewey (1996) as quoted in Ughamadu, K. A. and Okoye, N. S. (1998) as the continuous reconstruction or reorganisation of experience which adds to the meaning of experience and which increases the ability to direct the course of subsequent experiences. From this, one can conclude that education is the process of developing the habit of problem-solving which comes about as a result of processing of experience, which ultimately produces knowledge.

Teaching and Learning – Teaching is an art, science, or profession of teaching. The term generally refers to strategies of instruction or a style of instruction and is also occasionally

referred to as the correct use of instructive strategies (Olotuah, 2011). Quality teaching may be defined as instruction that leads to effective learning, which in turn means thorough and lasting acquisition of the knowledge, skills and values the teacher or the instruction has set out to impart (Olotuah, 2011). Teaching is synonymous to learning and both make up an education, of architects. The effectiveness of any system depends on the quality and devotion of the individuals involved in teaching (Ughamadu and Okoye, 1998). Thus, that process or activity the teacher designs to make teaching is to target learning, as teaching is to bring about learning. As the learner is placed under the teacher's guidance and direction and both involved in activities, the learner not only interacts with the teacher but with the entire teaching environment, knowledge, information, facts, altitudes, skills and values which are the ingredients of the content to be learnt as passed on to the learner through teaching. The types of learning in architectural design studio are: problem-solving, learning by doing, reflection-in-action (Schon's) – the student reflects on the action of the instructor and the instructor reflects on the action of the student – these mutual reflection activities form the critique process (Demirbas and Demirkan, 2012). Surface to say that motivation is an important ingredient to (in form of incentives, urges and drives) effective learning, that is, it makes students to perform any act satisfactorily or well. The general teaching method in architectural design is by the 'project method'. Although in the empirical study by Demirbas and Demirkan, it was concluded that there is a shift from learning by experiencing (CE) and learning by doing (AE) to learning by reflecting (RO) and learning by thinking (AC). All of these four learning styles occur in the design studio process.

EXPLORATION OF LITERATURE

Criticisms of Sustainability and Creativity in Arch-Education

Baird (2011) laments that; we have reached a point where sustainability in education and practice of architecture need to be addressed more rigorously. He relates how Ellen Grimes during an academic conference in April 2011 for whom sustainability too often turns into the desire to return to a putatively original nature, she argues instead for an approach to

the environment that is committed to the design of new ecological conditions. Also how Vyas Ujjval in same conference gave a documentation of numerous claims made by both clients and third parties against architects in relation to the environmental performance of their designs. Some of the allegations narrated by Ujjval are the technical failure of building components that may have resulted from environmental design ambition. Second set of allegations are that buildings, once completed, failed to meet their designers' predictions of improved environmental performance, or lowered operating costs.

That is one of the reasons this research argues that all the important experts are needed in the teaching of the design studio. Some scholars argue that sustainable development is a political ideology espoused by the United Nations. They go further to maintain that sustainable advocates may be looked upon as the tin men of the 21st century who litter our cities with goofy looking dilapidated green features that we can't stand looking at any more. In her work, Al-Hassan (2009) echoes that sustainability has been commercialized, and has become a commodity geared too much to monetary benefits. She opines for a new paradigm of sustainable architectural education, and points that Le Corbusier extremist position of architecture or revolution may be a starting point to begin. But this study advocates for evolution rather than revolution. (EAAE, 2010)

As creativity is being innovative, entrepreneurship or original, and Morrow R. et al. (2004) argue that if more emphasis is laid on sustainability than creativity in the education of architects, it will lead to producing non-creative architects and consequently non-beautiful and non-comfortable architecture. Members of Windsor Forum (2004) agree that sustainability stressed in line of world reality should be emphasised more than creativity in the education curriculum and that creativity is not necessarily something you must acquire during the course of training but it comes with exposure, experience and time. This is also the view of Garry S. (2002) by finding out that most architects do their creative works as from the age of seventy. This study contends for a balanced 50/50 of sustainability and creativity in arch-design education.

The exploration of the various debates in literatures and others on a conventional teaching of the arch-design studio for sustainability and creativity in education of architects is critically done in line with the research objectives using the theoretical approaches of collaboration, integration and adaptability. This session begins with discussions and arguments on collaboration.

Collaboration

The major areas of collaboration that are considered in this session are recognition, selection and participation, cross-studio/disciplinary, government/institutional support, peer or team learning, jury as a teaching device, exchange programmes/conferences, and global studio initiative.

(a) Recognition, selection, and participation – In studies of equity, Salama (2011), Ford (2010) and Hadjiyanni (2008) have argued for recognition and accepted it should be given a place of emphasis in stakeholders' participation. Some professionals want to be recognised; formally and or informally in order to participate in the teaching of the design studio, and those to be recognized must be selected. According to Adeyemi (2012b), you know them the way they talk in conferences and seminars; they are experienced, flexible and have the interest to teach and not to ridicule students. Professionals with intrinsic qualities, have entrepreneurial approach to growth and new direction (Hancock, 1981; Interior, 1995). Stringer (2006) argues for stakeholders' participation to obtaining favourable outcomes. Also Christensen (2010) emphasizes that working together in interactive decision-making process will help students gain heightened understanding of learning. If only the right calibre of professionals are invited to participate, then we can contend for and according to Lehmann (2009), this builds strong links to good collaborative practices and one of the varied examples of involving students in real-world projects. They represent examples of applied design research that illustrate what is known as the scholarship of integration (Boyer and Mitgang, 1996).

Lehmann (2009) goes further to add that communities and government bodies could also be involved depending on the type of design project. This, he defends, is a strong interest in the reality of making, as the great practitioner and educator Alvaro Siza calls it, leading to collaborative initiatives and this is to maintain diversity and enhance the students' learning experience, as this study also buttresses. And manufacturers too can also participate. Salama (2012) argues for architectural educators to be driven by generic goal that emphasizes giving students the confidence in their critical abilities – that they can formulate a legitimate, substantial opinion and articulate it. And this was earlier emphasized by Salama and Wilkinson (2007) being the central mission of design educators; development of skills and

critical thinking abilities for future shapers of the built environment, that in turn respond to demands placed on design professions by society.

(b) Cross-disciplinary – Again Lehmann (2009) stresses that cross-disciplinary studio teaching should be developed and intensified. This study adds that students should not only be encouraged to undertake their industrial training and study visits in architectural offices, but also in construction management and planning offices. As Olotuah (2012) criticises that our students are design studio trained architects, they cannot even make building drawing for approval, and cannot manage and supervise a simple building project.

(c) Government and Institutional Support – The Australian Learning and Teaching Council (2009) outlines the rights of curriculum development in architecture studio teaching as follows, that;

1. Government and institutions should review funding models to recognise the essential characteristics and role of studio teaching within the discipline of Architecture to more adequately resource studio teaching.
2. Institutions, schools and departments should develop processes to make staff workloads more manageable; to balance teaching, research and service commitments; to make staff development a reality; and to make recruitment, retention and succession planning more effective.
3. Institutions, schools and departments should recognise that staff in Architecture discipline needs to include a mix of industry/professional and academic skills in order to meet learning objectives.
4. Institutions, schools and departments should ensure good and well maintained working space, facilities and other resources (including flexible premises appropriate to architecture discipline, projects and level of study; access to appropriately equipped workshops and technical support; and ICT hard and software appropriate to discipline and industry standards.
5. Architecture profession and representative academic body should require, where possible, that studio space and equipment standards be included among accreditation/benchmarking criteria for the discipline.
6. Representative academic bodies, schools and departments, with institutional support, should establish guidelines and benchmarks for

access to studio space for students use (especially outside normal working hours and in terms of occupational health and safety provisions) and ensure they are documented and promoted.

7. Institutions, schools and departments should establish clear and consistent articulation agreements between education providers, and courses that recognise the types of learning opportunity distinctive to vocational education and training (VET) and higher education sectors that together contribute to the mix of learning skills needed in graduates. VET and higher education sectors should consider the potential of joint award programmes, subjects and projects.
8. Institutions, schools and departments should develop more efficient models for delivery of Architecture studios, including streamlined course structures, fewer individual degrees, and simplified major streams. Standardised nomenclature should also be considered.

Guidelines for Studio Teaching

9. Studio academics should ensure that studio includes collaborative activities such as group projects, peer critiques, discussion and skill sharing to prepare students for industry/professional practice that is increasingly reliant on effective communication among team members, and engagement across the discipline and with project associates.
10. Schools and departments should facilitate effective and high level interaction between staff and students to achieve quality learning outcomes and experiences in studio – provision of extended periods of time in studio with peers and staff members, non-linear, time intensive and reiterative practices engaging in studio use over time beyond the limitations of formal structure.
11. Schools and departments should encourage potential synergies between industry/professional practice and academic research, and where appropriate develop collaborative projects within academic research structures and processes.
12. Architecture curriculum developers are encouraged to consider ways to utilise more efficiently and effectively the range of learning opportunities made available through contemporary study options, from vocational education and training (VET) certificates to doctorates.
13. Studio academics should ensure that studio class structures recognise that smaller studio groups allow for greater interaction among staff and students, and between students, and help to create a positive studio environment that is conducive to experimentation and risk-taking, leading to best outcomes for student engagement and learning.
14. Assessment is a key element in the mode of studio learning, and studio teachers and curriculum designers should use the STP assessment indicators or other unified indicators as a means of advancing the overall student learning experience in studio.
15. Schools and departments should review, discuss, and consider adopting the benchmark principles for quality studio teaching in Architecture, for example as detailed in part four, volume one, of the curriculum development in studio teaching.

(c) Peer learning, Jury as a teaching device, Exchange programmes and Conferences –

Chu (2009) says that although students prefer to work alone, teachers should endeavour to encourage team spirit among students. He defends that in the process of teaching practice, teacher needs to have a sense to culture the team spirit among students. This is different from group project which Gross and Yi-luen Do (1999) present that they are unpopular but they can be used sometimes to learning teamwork in this manner. But, as it is done now, studio should continue to emphasise both individual and teamwork, especially with the recent emergence of the Virtual Studio. Some scholars maintain that juries should be used also as a teaching device; in order to ensure that students will be alert, as well as present. Inadequate assessment procedures leave students confused, demotivated and lacking the necessary confidence to work creatively (Morrow *et al.*, 2004). This review highlights the importance of exchange programmes and attendance of conferences by students.

(d) Global studio initiative –

This involves taking students overseas to participate in an advanced design studio, for example where students from Nigeria or Africa will have the opportunity to collaborate with students from other countries. Iroegbu (2010) reports the Nigerian Institute of Architects, NIA President; Tunji Bolu's statement on the celebration of NIA 50 years that schools of architecture in Nigeria should be trained to compete internationally, and this can be one of the ways to do that. The next session is on integration.

This session is a discussion on integration as an element of teaching conventional architectural design studio for sustainability and creativity.

Integration

These core areas; research, originality/creativity, body of knowledge, computer training, design process/curriculum, beginners'/studio system, style of teaching/ratios, series of seminars and lectures, competition/prizes, scenic site/multiple typologies, are critically discussed with respect to the research objectives in teaching of a conventional arch-design studio.

(a) Research – The emerging challenges to design teaching; what must be taught and learnt is a continuing open research process, therefore Stevens (1998) challenges architectural education to live up to its responsibility by bringing research discovery into design teaching. Amole (2004) and Mgbemena (2007) both pointed that students can be equipped with knowledge and skills for solving environmental problems also via research process. This is to foster the students' creativity and strengthen their interest, motivation and commitment to improve the environment (Olotuah & Adesiji, 2006). The objectives of the architectural education as reflected in the aspiration of the 3rd Nigeria's national development plan for educational programme also argues the importance of research opportunities appropriate to the development of natural resources and technological skills in meeting national demands (FGN, 1975). Some scholars maintain that the role of the academy is not only to teach received knowledge, but is also to ever question, ever pursue new knowledge.

(b) Originality/Creativity – Originality is not synonymous with creativity, but both require imagination and resourcefulness, creativity is less about generating wholecloth or from scratch, and more about working with givens or within a system. It's less about superseding and more about adding – whether to a language of form or a larger body of knowledge. They are lifelong experiences (Windsor forum, 2004). Kowaltowski et al. (2010) agrees that expertise develops over time as a person matures but that it is a general view. And a point is reached when a peak of performance occurs and then an inevitable decline begins (Cross 2004 cited in Kowaltowski et al. 2010). Asasoglu et al. (2010) vehemently argues that creativity should be the guiding concept in the revision of architectural education, despite its

social and physical connotations and implications. Agreed creativity can not be learned perhaps, but it can certainly be encouraged and abetted (Medawar, 1969: 57 as cited in Asasoglu et al., 2010). Asasoglu et al also find that the time spent on design project, whether short or long and whether students embark on a problem in the studio or from class at their own convenience did not result in much significance on the end result. Creativity is a concept of bringing forward new ideas, while originality as a prime goal is shunning repetition of ideas. Kowaltowski et al. argues that although “cookie cutter” architecture is the symbol of all that is wrong with our present-day society, but the objectives of creativity in building design should not be originality for its own sake. Essential is the search for new ways of solving problems (functional, technical, social, urban and aesthetic) in intelligent and environmentally responsible ways. Ways in which creativity can be fostered are: setting well defined problem limits, imposition of restrictions (building codes, site conditions, costs, etc), brainstorming/visual brainstorming, browsing, charette, excursions, focus groups, other peoples viewpoints, using crazy ideas, using experts, visualizing a goal, working with dreams and images, etc and giving students design tools such as drawing, CAD and model making (Kowaltowski et al., 2010).

(c) Evidence of body of knowledge in an architectural piece – The great practitioner Andres Duany in Windsor forum (2004) argues that in a school of architecture, it is important to deal with architecture in a rigorous way. And that if you look at the work of architects like Aalto and Corbusier in terms of style, it is all over the place. But the quality is very high because there is a certain rigour; there is a body of knowledge.

(d) Hand or Computer Presentation and Model Making – Giddings and Horne (2008), and Duarte (2005) have debated the disadvantage of hand drawing, being perhaps the greatest impediment has been the effect on the design process; hand drawings and models can involve considerable time investment by students. And Goldman (2005) voiced about how architectural students are generally taught to draw the same way their tutors learned – with traditional media first. With CAD, design and presentation methods can be harmonized, and such representations are enabling the development and testing of designs to be faster and more accurate; and students can now

quickly and accurately produce designs to a much more sophisticated level. Brawne (1992), Gross, and Yi-luen (1999), and Mallgrave (2010); have all also admitted the contributions of CAD in teaching architectural design education.

These authors contend for and that students are now producing with CAD some of the highest quality designs, and some of the most interesting forms ever to come from university schools. This study defends this position and advocates for less number of years for hand drawing. Though agreeing with Giddings and Horne (2008) that Models have the disadvantages of one; viewed from above, they produce less impact than from human viewpoint, and two; they imply neatness in the environment that cannot be replicated in practice. But, sometimes they are understood and appreciated better by clients and professionals than drawings (NIQS, 2010).

(e) Design Process and Methods – Many authors including Schon (1983, 1982) associate the design process thus: collection/analysis of information → development/test of solutions → presentation of solutions. In particular Brawne (2003, 1992) has it as; P1→TS→EE→P2: (P1=problems recognition, TS=trying solutions, EE=errors elimination and P2=problem solved). Presentation skills should be taught concurrent with each project, and short lectures should be used in studio to teach and clarify the specific subjects being studied. Clarity of subject matter should be highly valued, and faculty should strive to maintain this, as emphasised by Adeyemi (2012a) who equally argues that the tutors do not even know and understand what the project is all about; they need to do their homework. Eagen et al. (2010) explain and enlighten that architectural design process utilizes the tension between what is desired and what is possible, often starting with the desired and working its way back to what is doable.

(f) Curriculum – All samples studied have five (5) areas – design, history, technology, skills, and liberal arts, but with different durations of time. There is an opportunity to have two parallel strands; one that actually strengthens the business of an architect by providing them with useful practice skills where they could serve as good architects by looking very carefully at how actual history, drawing and design courses helped them achieve this. And the other parallel strand is a general degree in architecture, a degree in architectural studies which will enable the student

to go into development, government, real estate, law, and other professions, so that each can have a broad-based understanding of the importance of the built environment. Some scholars argue that this would actually provide students with a more coherent programme. Salama (2006) maintains there are these differences all over the world. Whilst scholars and practitioners like Westfall (2012, 2011, 2008), Rybczynski (2012) and Kelbaugh (2012) and Duany (2012) have vehemently argue for and against how we train architects, either in the Beaux Arts style or in the avant garde style like the Le Corbusier and the other modernists. However, this study advances that whichever strand any school takes it should be acceptable, as some scholars too have praised the idea of diversity in training architects. The Windsor forum (2004) challenges that the city should be given value than the architecture of object buildings, and students design training should be geared towards the cities as these are the places the architects would do most of their projects. Also, building preservation should also be positioned centrally in the curriculum as a way to reform the place of history and to be more adventuresome and liberal; the programme should be longer. Nigeria's NIA is already pioneering this too. In the Viseu (2004) conference similar ideas were manifested, the most prominent theme was the emphasis on the inseparability of architecture and urbanism, a theme made explicit in the focus of its proceedings.

(g) Initial design projects courses for freshers/ What beginners need to know – Several discussants in the Windsor 2004 forum and IAE 2011 summit contend for giving students abstract exercises like spots and dots and then to composition, because their knowledge of architecture is usually very limited. Viseu conference (2004) adds collection of drawing exercises in various media (pencil, ink, and watercolour). This study supports in addition abstract or mini-residential buildings with presentation in any media the individual chooses. This view is also advanced by Chu (2009) and Tornqvist (2008).

(h) Style of teaching/Ratio – The architectural educator David Mohny in Windsor forum (2004) elaborates that there are two models and two pedagogies that work. You let the students dream and then you give them the rules to organize dreams, or you give them the rules you let them dream. The pedagogies that don't work are the

ones where you only dream or you only give them the rules. On ratios in studios and lectures, architecture schools have guided to trade with the 12-person studio and for the 70-person lecture.

- (i) **Running series of seminars and lectures in the design class** – Series of seminars and lectures are usually conducted to run alongside the design project work, this according to Roberts (2007) are intended to help students gain a better understanding of their work, as the students are expected to apply those ideas to reality.
- (j) **Competition** – The notion of competition between individuals, schools, firms, is one of enduring values of architecture. At the Ecole in the 18th and 19th century, competition was lauded as a virtue in itself, and progress was made by success in competition. Anthony (1991) and Bourdieu (1990, 1990, 1986), defend that it is for approbation and approval, as students can display to their teachers their desire for and acceptance of the game of architecture.
- (k) **Scenic Sites/Multiple design typologies** – Chu (2009) and as in some Nigerian universities handbooks emphasise, in teaching a conventional arch-design studio for sustainability and creativity, teachers can find a scenic site whilst leading student field trips. When looking at the terrain, guide the students to observe the surrounding environment of the land, to see whether it can be used in their design or create something new. Then ask the students to make their own to deepen their understanding after field survey. In addition; multiple design typologies will expose students to wide range of design typologies, different site conditions and structural principles. The next session is on adaptability.

Adaptability

Adaptability presents arguments on adequate studio provision, adaptable professionals/retention, and cultural identity/studio culture, needs of society/natural environment, real world experience, and membership of organizations, as factors in conventional teaching of sustainable and creative architectural design education with respect to the research objectives.

- (a) **Adequate studio provision** – This is a key to the success of the conventional teaching of a sustainable and creative architectural design studio as the full potential of peer learning will be

exploited within this invaluable learning arena. However, Holgate (2008) asserts that the quantity of space afforded to studios is extensive and expensive, and he says many schools of Architecture in the UK have been forced to close down studio spaces, breaking the spatial link between the production and critique of student work. This according to him is unfortunate for some schools in the UK. This study supports the consistent use of studio based teaching as part of the varieties of teaching strategies of a sustainable and creative arch-design studio, especially in the developing world. Reflecting on Boyer (1996), provision of studio spaces is done for the following reasons: authenticity of students' experience, collaborative and group exercises. Eagen et al. (2010) contribute to the importance of the design studio for design thinking and being superior to cognitive and analytical thinking for solution generation, and maintain that the design studio is a cornerstone of architecture education, as it offers a practical and reflective way of accelerating and enhancing learning.

- (b) **Adaptable professionals/Retention** – According to Adeyemi (2012b), professionals that are adaptable to the students and not those ones who are stiff-necked; but being open to listen to students' ideas and direct these ideas for design creativity. Unfortunately, he says some professionals are just out to ridicule students and never see anything good in their ideas. On retention for teaching, some scholars support the idea; in addition this study stresses not just the best students, but best students with best in design.
- (c) **Cultural Identity and being Cultured** – The importance of cultural identity in the context of UIA/UNESCO (2003) is not in conflict with its idea of globalisation of architecture and architectural education. By cultural identity, it means bringing the culture of the people to bear in the architectural designs and its education. Whilst globalization is referring to the standards, training and assessment of architects globally should be upto standard, it strengthens the need for identity on one hand and the need for universality on the other (CAA, 2003).
- (d) **Needs of society, natural environment and community building** – Boyer (1996) maintains that an enriched mission is the key to the renewal of the profession which synonymously applies to its education. The four purposes identified as priorities in the report may each be seen to support

the needs of the society and improving the natural environment, as the Windsor forum 2004 re-states: building to beautify, building for human needs, building for urban spaces, and preserving the planet. Our negative attitude to these laments some scholars in the Windsor 2004 forum have resulted in automobile-scale development: we drive more, walk less, lay more asphalt with negative ramifications for environmental and physical health, and consume more land. Peter Brown in Windsor forum (2004) gives example that the US centre for disease control links the automobile-oriented layout of suburbia to an epidemic in obesity, the rising cost of automobile transportation, and the related increase in commuting and driving time and this is putting a strain on families. And that this can be overcome by the concept of a walkable environment that is safe from crimes and danger. This can be summarized by the argument of Salama (2012); that architectural education should not be for imparting knowledge and skills for successful practice but also for developing values, ideologies and philosophical positions. For example, in Salama's teaching, he places value on user populations and their cultural aspirations, an approach of thinking globally and acting locally, reconciling lectures and studios, sensitizing students in human aspects of the built environment, developing students' abilities of searching and thinking critically, and integrating real experiences into design studio teaching practices. Salama argues further that the major concern is to strike a balance between teaching design as a creative activity and as an activity tempered by the responsibility to the people and place affected by the building. In addition to the development of values, ideologies and philosophical positions, this review stresses important use of the laws of the land or the political decisions of the land in creating and shaping better living landscapes for humanity.

(e) World Reality Design Studio/Real World – In the robust debate from the international architectural education summit, IAES (2011), the relationship between the design studio and real world proved to be the crux of the debate. Ecole group lamented the conservatism of today's students – reflecting a general concern that environmental issues are used to justify timid designs – and insisted on the importance of maintaining the autonomy of the studio as a place in which to fantasise. During the summit Alejandro Zaera-Polo declared that any studio not

actively engaged with reality was headed for irrelevance. It was Ralph Lerner who finally pointed out the elephant in the room: that in this globalised educational marketplace, the students are now so well-informed, mobile and ruthless in their choices that any academic institution or individual not keeping pace with consumer demands is unlikely to survive. World reality experiences can be achieved by the development of the 'live project' as a school subject. This has already been pioneered and in operation in some schools (Martin, 2008). Morrow *et al.* (2004) from studies on reality versus creativity argue that creative engagement with reality, despite its challenges enriches rather than impoverishes design and moreover, that in order to develop the expertise and motivation to sustain this creative engagement, that this process of engagement must begin in first year. For example, a creative design project could be 'design a space for a juggler' and a reality design, 'design a porch for a semi-detached'. The bottom line is development of a sustained creativity all through the training period of the students.

(f) Membership of Organizations/Artistic Families – Williamson (1991), cited in Stevens (1998) affirms that a number of famous architects did gain access to clients because of their families' social contacts and because they attended Ivy League schools where their classmates included potential future clients. Others, like Frank Lloyd Wright, who did not attend those types of schools, found other ways to reach clients. Wright, for example, not only benefited from his relationship with his uncle's congregation, but actively courted his early clients by joining their organizations and activities. Hence the psychologist D. W. Mackinnon found that many of the great architects came from artistic families (Stevens, 1998). It is a view of this study that students going out to other departments and faculties to take some liberal courses could serve as a remedial measure to this issue. Kowaltowski *et al.* (2010) argues that the importance given to the artistic content may cause architects to ignore social aspects in architecture and to emphasize their self-expression.

SUMMARY/RECOMMENDATIONS

Summary

The explored creative works of authors and scholars cited in this study, the experiences and very argueable opinions expressed in the various debates

and conferences (IAES, Windsor, Viseu, etc) to improve ways and methods are used in contending for teaching a conventional arch-design studio for sustainable and creative architectural design education.

Recommendations

Therefore, the recommendations and outcomes of the research study are:

1. Recognition – recognition, selection and recognition to participate by the right calibre of professionals, and they should be put as part-time lecturers or as is done in Medicine.
2. Exposition of improved ways and methods of teaching a conventional arch-design studio for sustainability and creativity.
3. Integration of other related building professionals (no teamwork hence much criticisms on sustainability and creativity) and more awareness on health, safety and welfare, aesthetics and environmental sensitivities issues in teaching designs, and these should be put into the curriculum FGN/ Building Code (2006), Windsor (2004) and Boyer's Report (1996).
4. More of government, institution, school and department support because of the peculiarity of the architecture discipline.

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