

Entrepreneurship Integration: A Paradigm-Shift for Sustaining Architectural Education Innovation

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Abstract: The prime intention of this research is to stress the potential benefit of introducing entrepreneurship teaching into the architectural education's curriculum structure. The study outlined channels of introduction and impediments that could hinder the integration. Hence, findings from the survey carried out on the current status of entrepreneurship integration in Nigerian schools of architecture provided. The study used mainly quantitative research approach through purposive sampling method. The perception of 389 students and educators of architecture program on the entrepreneurship awareness were sampled and the data collected was analysed with a Statistical Package for Social Science (SPSS). The research outcomes showed that entrepreneurship's integration in the selected Nigerian schools of architecture is still at its lowest stage. As a matter of fact, the educators' level of entrepreneurship knowledge is somewhat weak to instil entrepreneurship culture on their educatees. Orthodox teaching approach (lecture series) is still predominately used as against the innovative practical-based teaching methods required for today's competitive economic reality. Possible impediments to the entrepreneurship integration and modalities on how to successfully inculcate entrepreneurship re-orientation in the young architects under training in the higher learning institutions provided. Today's reality is to position training and practice of architecture in the perspective of techno-entrepreneurialism.

Key word: Entrepreneurship, integration, architectural education, orthodox, techno-entrepreneurialism

INTRODUCTION

In the 21st century, skills in creativity, technical and management know-how and sound knowledge of entrepreneurship are vital for the architectural practice. The capacity of architects to meet the clients' demand for diverse products and services with the ordinary design skills in the current competitive labour market is contentious. The ability of architects to act as the leader of the building team is not according to an automatic status in the construction industry nowadays. To a greater extent, economic agents of change (technological revolution, economic and socio-political value change) contributed more challenges in the architecture profession in recent time (Ivarsson, 2010; Yetton *et al.*, 1994). On this account, this study brings to light the need to integrate entrepreneurship value into the architecture curriculum content in the Nigeria's tertiary institutions with the view to apprehending the challenges mentioned above. Most importantly, possible ways on how to achieve the architectural-entrepreneurship curriculum integration, possible impediments and the demand for a

paradigm shift in the training approach of the graduating architect in the HLIs were clearly outlined in this study.

The current competitive labour market has positioned education an enterprise. Similarly, the process of teaching in the Higher Learning Institutions (HLIs) is a figurative expression of the function of production of an industrial product lines. In fact, every HLI is a production hall where students develop ideas and innovation under the capacity of the lecturers' supervision in the academic setting and the products are certified graduates that are expected to be skilled labour force for the national economic prosperity. In the same perspective, Aronowitz (2000) maintained that contemporary HLIs is like a production system that comprises of different plants/lines of assembling such as various departments in faculties and different faculties make up the HLIs but all are to produce and supply different assorted products (skilled graduates with diverse talent) into the labour market.

As a matter of fact, Nigerian HLIs' production lines offered varieties of graduates into the currently saturated competitive job market. Though, in the past, the students

of HLIs have enjoyed higher employment rates compared to individuals with lower levels of educational qualification but now it is an idea of the yester years. Graduates' employment problem is progressively becoming a genuinely concerned all over the world (Nunez and Livanos, 2010) and Nigeria labour/job market was even more grievous. The unemployment rate in Nigeria is currently recorded at over 68% (Awogbenle and Iwuamadi, 2010) and this is a pressing issue that require critical attention from all the educational stakeholders. The reason is that graduates are future labour force who will become the driving force for innovation and knowledge-based economic development.

Ooi and Ali (2005) pointed out that the crucial challenge in the HLIs is the ability to foresee future requirements and to reform educational policy as when due to avoid/to reduce the students' unemployment in the labour market (Andabai, 2013; Nikandrou *et al.*, 2009). For example, Akuegwu *et al.* (2011) and Popoola (2009) claimed that there is a need for the educational stakeholder to comprehend the global and local dynamic nature of the economy as the determinant for the reform in the HLIs. Presently, Satope and Oladeji (2012) reported that Nigeria's educational standard is falling in the world universities ranking and quality of graduates required for the national economic advancement is somewhat weak. They concluded that majority of Nigerian graduates are job seeker rather than being a job creator and architecture graduates are no exception (Gafar *et al.*, 2012).

To a large extent, this research is divided into four parts/sections. The first sections discussed the architectural development in Nigeria. The second sections provided analysis of the contemporary problems facing the architecture profession such as rising unemployment and lack of vibrant new project commissioning. The third section discussed architectural-entrepreneurship educational curriculum integration as a possible approach to control and reduces the problem mentioned above. The last section outlined, elucidated and proposed possible implementation procedures on how to actualise the new paradigm for Nigerian HLIs' architectural-entrepreneurship transformation. Most importantly, the adoption or adaptation and strategic implementation for the entrepreneurial-architectural educational curriculum reformation greatly depend on the entire Nigerian educational stakeholders.

Currently, reflection on the following questions would provide a clear indulgent of the architectural professional's challenges. First, how vibrant is employment/job opportunity in the architectural profession at present and what is the educational stakeholders' reaction to the current challenges? Second,

what is the current level of the educators/lecturers' understanding of the entrepreneurship benefits and its implementation processes in the Nigerian universities that award degree in architecture? Third are graduating students of architecture well informed and aware of the crucial significance of entrepreneurship as a driver for business start-up upon graduation? Lastly, is existing architectural course content consider entrepreneurial skills in the in the design process?

Therefore, the primary purpose of this empirical paper is to reflect on the questions mentioned above and this is to provide suggestions on how to reduce challenges facing Nigerian architects' professional practice in the future. The main constructs examined were architecture course content, students and lecturers' know-how on the entrepreneurship concept and impediments for the entrepreneurship integration in the education of architecture in selected universities. In conclusion, recommendations for the development of entrepreneurial-architects in the highly competitive Nigerian job/labour market outlined.

An overview of architecture profession in Nigeria: In this study, the discussion focused on a critical review of the Nigerian architectural profession, the current role of the architects and the issues evolving from the current socio-economic situation in Nigeria. The essential for the entrepreneurship teaching in the architectural education and its role in the professional development presented in collaboration with the possible integration approaches for the entrepreneurship into architecture education explicated.

The development of the nigerian architectural profession: An assemblage of architects trained abroad in the United Kingdom (UK) and United States of America (USA) co-founded architecture program in the Nigerian universities. In fact, Nigerian Institute of Architects (NIA) was established in the year 1960. Ahmadu Bello University was the foremost institution for the architects' training and other HLIs such as the University of Nigeria; Lagos; Ife; Jos; state and private universities followed. The operation of architecture training started as a single tier program with 5 and 6 years duration and then Bachelor degree of Architecture typically awarded. Abdulkarim stated that re-design of the program resulted in the current double tier curriculum structure of the first degree as Bachelor of Science (BSc) and second degree as Master of Science (MSc) in Architecture that started since the 1990's Nigerian educational transformation.

Oyedeki (2012) stated that over twenty-five government and private owned HLIs award degree in

architecture. The curriculum structure of the institutions awarding B.Sc in Architecture comprises of general subjects, art and social sciences courses and technical and computer related courses (building technology and computer-aided-design). Regardless of the broad spectrum of courses, architectural design still carries more weights. Also, the MSc in architecture's curriculum structure covered courses in professional practice, architectural design and life project as well as research component (thesis). Despite, emphasis on the architectural design still accounts for the highest credit unit in the second-degree programme course structure that is Master of Science in Architecture.

Besides, Abdulkarim reported that one of the fundamental objectives of the double tier curriculum structure for the architecture education is the interdisciplinary linkages within all the faculties in the university and achieving this objective is still a mirage till date. For instance, it is infrequent case that architecture students specialise in other related disciplines (construction engineering, real estate and facilities management and urban planning development). In fact, he reaffirmed that there are no interdisciplinary linkages across the faculties in both undergraduate and postgraduate courses recognized to exploit the entrepreneurial opportunity crosswise the architecture as a field of study in most of the Nigerian schools of architecture.

To buttress the gap above, both in theory as well as in the practice that architecture profession is one of the most encroached professions in the built environment (Gafar *et al.*, 2012; Chakraborty, 2014). In fact, quacks pose more threats than other allied professionals' invasion (engineers; builders; quantity surveyors; bankers; lawyers and so on. The professional encroachment in addition to the Nigeria current economic and political insecurity positioned the graduating architects' employability in the job/labour market to be more competitive (Mukhtar and Salisu, 2010; Gafar *et al.*, 2014).

In addition, scholars have argued about the need to change and stop defending an outdated architectural curriculum structure (Olotuah and Adesiji, 2006; Mukhtar and Salisu, 2010). Gafar *et al.* (2012) and Olotuah (2006) reaffirmed that lack of repositioning the profession against the challenges of the new era has created opportunities for other professionals in the built industry to exploit. More so, change is constant, the world is dynamic and that failure to face millennium reality may create more challenges on the way architecture students prepare for the future (Gafar *et al.*, 2012). Certainly, the neglect of entrepreneurship awareness and know-how on

venture creation in the architectural training could have more negative impact on the graduating architecture students' employment and self-reliance prospect in the labour market. In summary, the scholars' apprehension about the architecture education is attracting more interest in the academic circle in this day and age (Chakraborty, 2014). More so, the current Nigerian economic uncertainty, market globalization and socio-political realities and insecurity are fuelling this phenomenon.

The Nigerian regulatory bodies of the architectural

profession: The main body that regulates and coordinates the operation and activities of the Nigerian universities is National Universities Commissions (NUC). At the same time, the Nigerian Institute of Architects (NIA) in collaboration with Architects Registration Council of Nigeria (ARCON) are the two formidable governing bodies that cooperate legitimate conscientiousness in the architectural practice. In addition, Association of Architectural Educators of Nigeria (AARCHES) collaborates with the NIA and ARCON for the accreditation exercise of the architecture education in all the HLIs. The triangular-coordination that exists between the bodies sees to the primary responsibility of regulating and coordinating the ethics of the profession and the endorsement of architecture training in Nigeria. At the same time, reformation/remodel and transformation of the architectural curriculum structure and professional practice for the Nigeria's socio-economic development is within their primary jurisdiction.

However, NIA is a non-governmental organisation established to sustain and defend the professional architectural practice among the members in the country. The professional membership's structure stretch from an ordinary member (graduates) to full capacity member (fellow). It was also stated in the NIA official website that the organisation is affiliated to the UIA-International Union of Architects and CAA-Commonwealth Association of Architects as well as AUA the Africa Union of Architect. Even though, NIA has the statutory right to organise and constitute the professional practice examinations but ARCON still works hand in hand with NIA in conducting the professional examination for the licensing to practice as an architect in Nigeria. Also, professional guidelines, programs and issues on ethical matters are enacted and regulated as contained by the NIA's jurisdiction. Also, the welfare of the students and architects in practice; resourceful publication for professional development sustainability of corporate image and professional value and standards as well as punishment/sanctions are completely inside the statutory

power of the NIA to enforce. In summary, both NIA and ARCON control the membership's admission processes as well as an organisation of annual professional conference for innovation and discourse on pressing issues for national growth and economic prosperity.

The Association of Nigerian architectural educators in the HLIs formed under the umbrella of AARCHES. Association's operation is synchronized with the bodies as mentioned earlier and its purpose is to create cross-fertilization of scholastic development in teaching innovation and Research Development (RD) among the academician and practicing architects. Regardless of this brilliant initiative, the actualisation of this noble idea is still contentious (Mukhtar and Salisu, 2010). Even though, AARCHES had made an appreciable step in closing the gap that exists between the scholars in the academic community. Despite, inter-collaboration and galvanisation of the architects' academia and in practice still require more inputs from all the stakeholders in the profession. In the totality, NIA, ARCON and AARCHES are for the profusion of architectural profession and sustainability of Nigerian built environment.

Another important stakeholder organisation that exists to protect the indigenous architects from the common problems confronting their professional practice is Association of Consulting Architects (ACA, Nigeria) and it was founded in the year 2005. One of its primary objectives is to oversee and regulates/controls the practice of non-indigenous architects in the country. As identified by Delano both federal and state government of Nigeria commissioned foreign architects/construction companies more than the indigenous counterparts in recent time. He reaffirmed that the fundamental purpose of the ACA was to promote engagement and job opportunity for the local architects and not in favour of the foreign architects/construction industries proliferation in the country. Even though, elimination of foreign construction companies and their architects is not visible.

Against this backdrop, NIA had emphasised the important of proactive entrepreneurship initiatives and its integration in the training of architectural profession. More so, for employment and economic development of Nigeria as a nation depends on holistic entrepreneurship advancement in the HLIs. In fact, the 52nd Annual Conference outlined the adoption and adaption of entrepreneurial reorientation in the graduating students of architecture. One of the reasons is to reduce allied professions' encroachment and for the young generation of architects' employment creation in the highly competitive economic climate.

However, the critical issue in the HLIs is on how to facilitate effective entrepreneurship concept into the

training of graduating architecture students. Consequently, high rate of unemployment and a severe decline in the government and private new project commissioning that had created an undue and unethical rivalry in the professional architectural practice, in fact, demand architectural-entrepreneurship educational nourishment for the creation of innovative cutting-edge in the architectural practice. In summary, it could be safely interpreted and underlined that all the regulatory bodies of architecture as a profession have accepted entrepreneurship as unavoidable drivers of knowledge-based economy and wealth creation for the architects of the new era. The subsequent section takes a compelling look at the factors causing undue challenges in the architecture profession and this is to establish irrefutable reasons for the entrepreneurship and innovation inclusion in the architectural practice locally and internationally.

The Architects' role in the uncertain Nigerian economy:

The architects' roles and responsibilities covered design, construction and supervision of building project. Other services provided by architects are specification writing with the bill of quantity preparation for new project development. Currently, redevelopment, renovation and retrofitting are replacing new project design commission as result of economic recession (Waldrep, 2010). In fact, the recent global economic downturn had forced architects to re-evaluate their professional relevancy, particularly, as the head of building the team. Currently, the conventional approach to the architectural practice in the uncertain Nigerian economic climate is deficient and unsatisfactory. Even though, some architects still maintained their yesteryears' opinion that architectural service is unavoidable because every citizen would want/need to build their house. On the contrary, the reality of today is mass housing or condominium that requires a single architectural plan that is usually used as the prototype for thousand of housing units' development. Therefore, current housing policy does not provide more employment/job opportunity for the young architects. More so, the importance of any professional services is commonly based on the cost-benefit analysis and this in turns predicts clients' needs and desires in the recent competitive economy. On this account, architects have to disengage conventional approach used in delivering their products and services and employ cutting-edge innovation in the reconstitution of a more dynamic curriculum development in Nigerian schools of architecture (Gafar *et al.*, 2013).

Indeed, if architects are to reoccupy their legendary status and relevancy they were accorded, they have to

discover innovative products and services that can draw and not drive, clientele. The reality is that the pull and push factors would determine the noteworthiness of the new age of architects. However, the attraction of clients to architects services might depend on the quality of the designed products and services in meeting the satisfaction of the clients. On this account, Oyedele and Tham (2007) accentuated that building design which commands architectural landmarks and awards are nowadays less important to clients. In review, clients' satisfaction and the changing conditions of the economy would dictate the future direction of architectural practice (Othman *et al.*, 2005).

The attempt to diagnose the architectural profession's challenges is to x-tray the effects of the geo-economics backdrop in recent time and Nigeria is no exception. Engelsman *et al.* (2011) identified that the profession is experiencing a dramatic decline in its past glory affinity worldwide as a result of 21st-century economic drivers. More so, the attribute of the global economics' change drivers is interconnected as well as dynamic in nature. The technological revolution, socio-political value change and unpredictable economic change are the drivers of the competitive job market (Leftwich, 2007). For instance, Nigeria's economy practically depends on the oil income since the independence in the year 1960. In recent time, the oil revenue has declined so drastically that it cannot support the massive population growth and this has placed Nigeria among the confederation of world's poorest nations.

The next section discussed the economic agents of change and how they have impacted architectural profession in a few words. Economic Instability factor: presently, Nigeria economic condition is declining due to over reliance on the oil sector and this marked the country as a mono-economy. In fact, Nigerians are facing a falling living standard and insecurity in the political arena is huge. Scholars have identified corruption as the biggest issue hindering Nigerian economy advancement (Omotola, 2008). Unfortunately, dilapidation of every Nigerian economic sector is not uncommon such as poor infrastructural development, deteriorated health care systems and graduating students' hope of securing employment years after graduation is fast diminishing. In fact, growth in poverty level among the Nigerian citizens is alarming. Similarly, Daroda (2011) stated that the recent economic recession had multiplied the predicament of job opportunity for architects and abnormal unemployment in the profession. In fact, most renowned architectural firms in Nigeria are out of the job and some were so challenged to the extent that they have changed the line of business.

Technological revolution factor: In addition to the instability of Nigerian economic landscape is the technological advancement that is fast changing every professional practice and business landscape and architecture is no exception (Kolarevic, 2004). More so, technological revolutions have reduced and removed international boundaries through the global web-internet connectivity. This had created a new wave of competition for local professionals (architects) as their foreign contender provide parallel services via internet accessibility. In this regard, the competition in the profession is apprehensive as a result of technology advancement that had created a globalised platform or virtual marketplace for the architectural practice. Similarly, this revolution had set out a variety of powerful software packages with virtual-reality inventiveness. Technological reality of day has provided the opportunity to see tomorrow today by the clients/architects. More disintegration is experienced in architectural practice now a days such as mobile offices and beyond countries' borderline-partnership will be experienced in the future architectural professional practice. The era of information-knowledge-based is now and reorientation of architects' inherent creativity for entrepreneurship and innovation in their professional specialisation is inevitable.

Socio-political factor: De Groot *et al.* (2010) stated that societal value changes are strongly correlated with modernization and that change in every aspect of human life and their behavioural pattern would be influenced and transformed. In the same perspective, Thornton *et al.* (2011) claimed that dynamic nature of socio-cultural values perceived globally today is as a result of socio-economic and political inconsistent in many nations. More so, no profession operate in isolation and every inconsistency in the national socio-political value change practically affects every individual in the profession significantly. For instance, government policy and political willingness on the actualisation of housing for all is still an illusion in Nigeria and it is such brilliant initiatives that could empower every Nigerian and create jobs for millions of people, particularly, architects. Policy on land accessibility is an issue that has received little or no attention. Inconsistency in housing policy, type (mass housing schemes) and material and construction methods is still a vital issue. Availability and accessibility to mortgage facilities are more of a socio-political issue than an economic factor. In a nutshell, these are issues that need urgent government attention that could create vibrant employment opportunity in the country. Gafar *et al.* (2014) noted that entrepreneurs see

opportunity in every societal problem; therefore, the current reality is for the architects to develop more entrepreneurial capacity. Facilitation of this practice is best developed at grass root that is among the graduating students in the HLIs through their curriculum structure, so as to change/amalgamate architectural design education with entrepreneurship reality.

Service diversity factor: The range of services required by clients from the architects are fast changing in the in the modern day. The services required from architects are increasing, but the opportunity to gainfully secure employment or design project contracts is drastically falling (Engelsman *et al.*, 2011) even though, design project constructions require a large number of professionals' participation. Architectural service's diversity covered broad range activities such as design, build, operate and transfer of residential and commercial project; real estate management; technical related interior services (acoustic, decoration, lighting and green energy expertise). In recent time, facilities and project management are modern trends of entrepreneurial outlook in the built environment in which architects could exploit as a new area of specialisation. More so, architects' divergent background is an opportunity to harness the convergent entrepreneurial opportunities of the contemporary services requirement.

Market competitiveness factor: The business of built environment is highly competitive in recent time. Allied professionals in the built environment, as well as products of similar capacities/values are competing for limited clients/customers in an unpredictable competitive close marketplace. Also, the inconsistent scenery of the property market and coupled with the complexity of making property's investment top-notch have positioned clients (public/private organisations) demanding for versatile and adaptable professionals. To get round or navigate through these problems of the property market is the clients' justification for seeking for a flexible workforce in their organisations. As a matter of fact, professionals' versatile is the key attribute determining employment opportunities because clients with mega-projects seek for personnel with entrepreneurial attributes that could provide value for money and tremendous satisfaction.

Entrepreneurial re-orientation in the architectural profession is unavoidable, particularly now that developers are not limited to allied professionals. In fact, mass housing program is reducing architects' design project commission and architectural plans' piracy is prevalent nowadays (Waziri, 2011). More so, it is a policy

that embraced non-allied professionals participation (Lawyers, bankers and other investors). It has also been pointed out that architects are liable for the encroachment of allied and non-allied professionals because of their lack of diverse capacities to deliver in accordance modern responsibilities and to anticipate future challenges (Waldrep, 2010). At this point, Gafar *et al.* (2014) stated that there exist gaps for architect opportunists who can develop diverse attributes of professionals in the built environment to his/her advantage as in the past days of master-builder.

In the same perspective, Faber (2010) and Gafar *et al.* (2013) re-emphasized that facilities management, market and financial analysis and entrepreneurship knowledge would dictate the architectural practices of the future. Kersulienė and Turskis (2011) concluded that competition is inevitable and it is also fuelling innovation, creativity in the marketplace, more so, the role of architects in built environment should be far beyond plan provider instead as a service provider with a bundle of products. Regrettably, the current curriculum structure in the schools of architecture is not sufficiently developing their students against the current challenges/reality in the competitive economy. Therefore, this study proposed an architectural-entrepreneurship educational transformation for the architects in training and practicing architects in the current competitive Nigerian economic climate. Discussion on the benefits of introducing entrepreneurship education into the architectural profession training is the focus of the subsequent sections.

Role of entrepreneurial education in the architectural professional development: Globally, the new wave of educational policy reform in the HLIs is the entrepreneurship reorientation of the graduating students across the field of studies. Chan *et al.* (2012) noted that factors and justifications for renewed attention on the enterprise education are as a result of global economic recession coupled with the competitive labour market that is creating unprecedented graduates' low employment opportunity worldwide.

However, Matlay (2008) stressed that in spite of significant attachment to enterprise education in HLIs nowadays, the capacity to teach and apply its principles in practice is still contentious among the graduates. The teachability of the cardinal components of entrepreneurship such as opportunity recognition; idea development; risk taking proficiency and venture creation are still a controversial issue in the academic community (Gafar *et al.*, 2012). In a simple definition, entrepreneurship education is the development of a teaching process in the

educational institutions to inculcate skills of creativity and innovation for business/venture creation in the students. The students' gain from the entrepreneurship education is self-discovery self-challenging self-sufficiency and self-fulfilment and most importantly for national economic development (Galloway *et al.*, 2006; Gafar *et al.*, 2012). At the same time, Jones *et al.* (2012) and Rae *et al.* (2012) mentioned financial freedom and students having control over their life are the other priceless benefits of entrepreneurial achievement. To a large extent, notable scholars have suggested entrepreneurship development in every program of studies and as a universal remedy to rising graduates' unemployment problem (Chan *et al.*, 2012; Gafar *et al.*, 2012).

Regardless of entrepreneurship education's introduction in the Nigerian HLIs, effective and efficient implementation strategy is still a mirage. Even though, several commentators have identified the real influence of the economic development within the science and technologically related field of studies. And, architecture as a profession is one of such discipline that falls within the real agent of change for the national economic development. In fact, Abdulkarim connoted architectural profession as a jack of all trades. Surprisingly, it is this profession that develop/construct building projects and not bother about their marketing, management and commercialisation for endless entrepreneurial gain. However, outdated curriculum contents that deficient in entrepreneurship ideology, unproven lecturers and non-availability of accessible finance are possible hindrances for tertiary students' entrepreneurship development.

Johnson and coauthors noted that despite the statutory function of NIA, ARCON and AARCHCESS, the competition and challenges in the architectural profession are enormous and undeniable. Against this backdrop, Johnson and coauthors postulated that bodies mentioned need to promote the establishment of mandatory entrepreneurship programs across the Nigerian HLIs that offered the degree in architecture. The justification is that architects' mastery of entrepreneurial skills could serve as the toolkit for commanding built environment's market opportunities and beyond.

Method to launch entrepreneurship ideology in the architectural curriculum content: In the literature, notable scholars hold the favourable opinion on the teachability of entrepreneurship education in the HLIS (Fayolle *et al.*, 2010; Matlay, 2006). Gibb buttressed the fact that entrepreneurship teaching could instal required competencies and skills on the graduates to withstand the labour market competition and enable them to secure and

create new venture successfully (Richardson, 2013; Liebenberg and Mathews, 2012). In the empirical study, three suggestions were provided on the way to launch entrepreneurship ideology into architectural curriculum content. The first approach/suggestion is that it is believed that entrepreneurship is inherently a component in the architecture education. The idea is that do business is the traditional practice of an architect. The second approach/suggestion is that there is a need to upgrade/introduce building economics, financial management and marketing courses. The third approach is revolutionary and believed that there is need develop a new model of entrepreneurial-architects curriculum development.

The first method is based on the perception that architecture as a profession is business oriented in training and that infusion of entrepreneurship ideology is present in existing courses. In fact, this approach does accept entrepreneurship as a new program of course that need to be developed as a segregated component in the conventional architectural training in the HLIs. The understanding is that businesses issues are all-encompasses and required in every aspect existing course works. No new curriculum adjustment for the entrepreneurship concept inclusion is the credit of this method. Also, it could be less costly and less effort to implement while the shortcoming is confusion and complexity that may evolve in infusing entrepreneurship ideology without altering the aim and objectives of the existing curriculum and expect the different outcome. The conclusion is that actualization of this approach could be quite complex and perhaps too technical in operation.

The second method is practically based on developing entrepreneurship reorientation through new pedagogical methods in the existing course syllabus. The difference of the approach from the first perspective is in the expansion of existing course structure and application of innovative teaching methods with more emphasises on business consciousness and commercial awareness in the architecture education. The merit of this approach is unchanged curricula structure but relevant courses suggested for introduction and broaden of existing related courses to accommodate entrepreneurship concept. For instance, architectural design studio could accommodate diverse entrepreneurship opportunities (fashion, music, animation of films production and so on) in the architecture profession. Other areas of possible diversification with entrepreneurship outlook are facilities management, real estate management or project developer (design, develop and direct/dispose of). More so, an

enterprise in tourism development and Private Public Partnership initiatives are another brilliant entrepreneurship point of view, particularly, for the economic development in Nigeria.

The third approach is completely revolutionary because it requires the development of an objective-based entrepreneurial education with new vision/mission proclamation. It is a comprehensive reform in program course content, teaching and assessment methods. The initiative is to develop holistic entrepreneurial re-orientation across all (undergraduates and postgraduate) of architecture program. The plus of this approach is that the time frame requires for rebranding the students for entrepreneurial culture is optimum and realization of this great course is more visible compared to other methods mentioned above. Government educational policy support, non-governmental regulatory bodies' compliance (NIA, ARCON and AARCHSS) and availability of competency lecturers are the possible weakness of this alternative.

Conclusively, each of the approaches to launching entrepreneurship ideology into the architectural education system has its merits and demerits precisely. Preference and selection of one method for implementation are not the aims of this study. Therefore, it is the prerogative of every school of architecture to select and adopt/adapt the most appropriate method for their entrepreneurship integration. More so, availability and accessibility of tangible and intangible resources could significantly determine the implementation strategies to adopt/adapt in every Nigerian HLIs. The focus of next sections is the empirical component.

MATERIALS AND METHODS

Research participants: The study employed mainly quantitative research method to evaluate the current status of entrepreneurship teaching in the Nigerian HLIs that offered architecture as a field of studies. Targeted respondents used for this research were from the public universities in the northern Nigeria. Purposive sampling technique employed for the research data collection from the 400 respondents. Adopted questionnaire used for data collection (Gafar *et al.*, 2014) and it contained two sections. Section one establishing the current level of entrepreneurship awareness in the selected universities. Section two dwelled on assessing possible impediments to entrepreneurship integration in the Nigerian northern universities that award architecture degree.

A total of 388 (97%) of the administered questionnaire were duly filled and returned. The questionnaire's scale of measurement was set on a five-point Likert scale ranged from strongly disagree

1-5 strongly agree. The reliability test for the research instrumentation was established with the calculated Cronbach's Alpha (α). The data collected presented an acceptable test of reliability with the Cronbach's alpha of 0.76 and 0.91 for the two segments of the questionnaires. Statistical Package for Social Science (SPSS) Version 20 and simple descriptive analysis employed to evaluate the level of the entrepreneurship awareness of the educators and students of architecture in the selected institutions.

RESULTS AND DISCUSSION

Demographic data of the respondents: A total of 388 questionnaires collected back from the 400 questionnaires distributed to the population of 1568 undergraduate students and 134 educators in the surveyed four universities. Meanwhile, it only the 1st year students of architecture that participated in the compulsory entrepreneurship education programmes as stipulated in the current curriculum structure in the selected universities. In Table 1, respondents' demographic distribution is presented.

As tabulated above, it was evident that the respondents were predominately male in the both groups (students and educators). The research sample's gender distribution was not unexpected because architecture profession is known to be a male-dominated discipline in practice. The students and lecturers quota for each institution was fairly even and this is to give the four institutions equal participation with little or no biased. The slight difference in the frequency distribution of one of the university is because it is the pioneer university that award architecture degree in the northern Nigeria.

Students' entrepreneurship awareness: The purpose of the entrepreneurship education in HLIs is to enhance students' capacity for entrepreneurship knowledge and increase their intention toward self-employment after graduation (Nabi and Holden, 2008; Souitaris, *et al.*, 2007; Collins *et al.*, 2004; Fayolle, *et al.*, 2006; Matlay, 2008). The research finding showed that students' entrepreneurial know-how is predominately in the theoretical aspect of entrepreneurship understanding. As presented in Table 2, items of theory on the basic

Table 1: Respondents distribution

Variables	F-value	Percentage	Cumulative frequency	Total(%)
Respondents				
Students	328	84.5	0	
Lecturers	60	15.5	388	
Gender				
Male	241	46	287/74	
Female	87	14	101/26	388/100

Table 2: Architecture students' entrepreneurial awareness

Items of entrepreneurial awareness	Frequency	Approximate (%)
Theory and principles on basic business start-up	169	100
Concept of business planning	120	71
Approaches and sources of business finance	109	65
Attributes and responsibilities of entrepreneurs	107	63
Family business exposure	70	41
Marketing, feasibility and viability analysis business start-up	52	31
Idea/innovation development for business start-up	38	23
Problem identification and solution development for business	32	19
Proposal writing for new business	26	15
Networking and e-ventures creation	11	7

business start-up concept and knowing the responsibility of entrepreneurs scored highest. In another word, it can be interpreted that students' theoretical understanding of entrepreneurship prevailed the practical/innovative skills inculcation aspect/approach of enterprise/venture creation which is the core value of entrepreneurship teaching in the HLIs. The finding of this research is harmonious with Tessema (2012) study.

By implication, the research outcome indicated that the reality of architecture students opting for new business start-up and self-employment upon their graduation is not perceptible. The simple reason is that their high scores lie in the theoretical understanding of entrepreneurship concept, not on the practical indicator for business start-up. On this account, it can be safely concluded that there is a need to adopt/adapt and implement one of the proactive aforementioned three-point suggestions/assumptions to arrest this trend.

On a practical note, the third approach is suggested by the need to introduce a new model of entrepreneurship teaching into the architectural curricula that are totally revolutionary. Because, we believe that development of a new vision/mission statements with an objective-based curriculum restructuring of the architecture program's courses and content and pedagogical approaches could guarantee a sustainable inculcation of entrepreneurial culture among the students' of the Nigerians' HLIs, particularly in the architecture professional advancement.

Educators' entrepreneurship awareness and knowledge-ability: Many scholars acknowledged the importance of the entrepreneurship providers that is educators' entrepreneurship competency (Matlay, 2008; Jones *et al.*, 2012). In fact, Fayolle, *et al.*, (2006) stated that educators' competency is the success factor for the entrepreneurship proclivity of the students of HLIs and architecture students are no exception. Given this, the research equally assessed the educator's qualification,

Table 3: Lecturers' academic profile and entrepreneurship know-how

Qualification and experience	Frequency	%
First degree (Bachelor)	0	0
Second degree (Master)	46	76.7
Third degree (PhD)	14	23.3
Academic ranks		
Assistant lecturer	6	10
Lecturer 1 or 2	36	60
Senior lecturer	9	15
Associate Professor	7	11.7
Professor	2	3.3
Teaching experiences (years)		
1-5	20	33.3
6-10	28	46.7
11-15	6	10
Above 16	6	10
Areas of specialization		
Housing	24	40
Education	17	28.3
Technology	4	6.7
Sustainability	7	11.7
Entrepreneurship	2	3.3
Estate/Facilities management	5	8.3
Other area of specialization (specified)	1	1.7
Area of research publication and training	Yes	No
Have you conducted research in area of entrepreneurship?	2 (3.3)	58 (99)
Do you have publication on the area of entrepreneurship?	5 (8.3)	55 (91.7)
Do you have publication on business start-up project?	7 (11.7)	53 (88.3)
Do you involved in business idea development to building project?	42 (70)	18 (30)
Do you have training in the area of soft business skill?	29 (48.3)	31 (51.7)
Sources of knowledge-ability on entrepreneurship training	Yes	No
Private initiatives	26 (43.3)	34 (56.7)
Industrial attachment	60 (100)	0 (0)
Professional practice	37 (61.7)	23 (38.3)
National media/library	34 (56.7)	26 (43.3)
Conference/seminar	7 (11.7)	53 (88.3)
Hands-on workshop/training	4 (6.7)	56 (93.3)

competency, awareness and source of their knowledge-ability on the entrepreneurship know-how. Table 3 presented the research findings on the educators' entrepreneurial capacities.

The outcome showed that educators' knowledge and competency entrepreneurship acumen is weak. More so, educators who are the provider of entrepreneurship development in the HLIs scored items on the practical training approaches for the development of entrepreneurship competency and skills enhancement less. Though, some scholars have emphasised the significance of training (conference and seminar; workshop; journal publication) to the proactive development of entrepreneurship education in HLIs (Matlay, 2008; Tessema, 2012).

The essential mechanism and approaches on how to advance educators' academic, practical entrepreneurship knowledge indicated a single digit percentage (4, 6, 4, 8 and 15%). The implication is that the educators have

Table 4: Impediments to the entrepreneurship process in the architectural training

Impediments grouping	Frequency/percentage	
	Yes (%)	No (%)
Funding problem	312 (80.4)	76 (19.6)
Curriculum structure (course content) problem	301 (77.6)	87 (22.4)
Government educational policies problem	296 (76.3)	92 (23.7)
Nature of the entrepreneurship (taking risk) problem	235 (60.6)	153 (39.4)
Lecturers' capacity as the entrepreneurship problem	223 (57.5)	165 (42.5)
Lack of entrepreneurship centres	169 (43.6)	219 (56.4)
Trainee (student) problem	158 (40.7)	230 (59.3)
Political and Socio-cultural problem	119 (30.7)	269 (69.3)
Regulatory bodies problem	76 (19.6)	312 (80.4)

diminutive entrepreneurship knowledge-ability in the entire surveyed public universities and their training inclined more towards the profession-based as against the reality of the Nigerian's current economic dispensation that demand new age entrepreneurial-architects. This could create a serious challenge on the entrepreneurial inculcation on the students because educators are the gateway to HLIs' entrepreneurship success. The research finding is consistent with the past renowned scholars study outcomes (Nkirina, 2010; Ooi and Ali, 2005; Tessema, 2012). The proposition is that the architecture educational stakeholders in the surveyed public universities are required to launch training programs for the architectural education educators in the field of entrepreneurship.

Entrepreneurship process' impediments in the surveyed universities: From the literature, notable scholars outlined some impediments to entrepreneurship development in HLIs as listed in Table 3. Respondents' scores on the significant barriers in the surveyed universities were tabulated in Table 4. As scored by the respondents' (students and lecturers) questionnaires, categorically, the provider of the entrepreneurship education in the capacities of funding, curriculum structure, government educational policy as well as risk taking and educators issue were ranked highest on the impediment's score list. The government funding, course content and curriculum structure ranked uppermost as the fundamental challenges to the development of entrepreneurship education in the HLIs were not surprising. The reason is that they are primary formulator, curriculum designer and administers of the entrepreneurship teaching in the HLIs. They are the gateway for career entrepreneurship development. If the educators have the diminutive entrepreneurial know-how then no/less meaningful progress could be achieved in the rebranding and repackaging of the graduating students of HLIs, particularly, architecture students are no exception.

In fact, the entrepreneurial proficiency of the educators unswervingly impacts their students' entrepreneurship reorientation as supported in the studies

of renowned researchers (Liebenberg and Mathews, 2012; Fayolle *et al.*, 2006; Tessema, 2012; Matlay, 2008). In the same perspective, it is evident from this research finding that insufficient human resources capacities and inadequate entrepreneurship training initiatives for the HLIs' educators would have a grievous implication for the graduating students' entrepreneurship transformation for sustainable job creation and employment prospects in the future.

CONCLUSION

The architects' roles in the current competitive economic dispensation are very exigent. As a matter of fact, architects' success practically depends on good knowledge of the current economic climate and capacity to apply management, business and marketing's ideas for the efficient/effectiveness and sustenance of architectural practices. At the same time, architects should endeavour to evaluate their professional contenders in the built environment through the application of (SWOT analysis) and study their products, services and operational strategies to establish the gap and create a cutting edge innovation. In addition, knowledge of the business environment and economic agent of change in Nigeria could provide an added value/advantage for the architects in their service/product delivery.

The explicitness of architects' role in the contemporary knowledge-age economy is not unique to technical know-how only. Essentially, an architect must focus on a paradigm-shift for entrepreneurship-architectural practice, if not he/she may as well change profession. The contemporary architects need to be creative thinker techno-entrepreneurs in this modern age. To be a victorious architect in the current Nigerian economic uncertainty, market globalization and socio-political insecurity he/she must develop capacities in creating cutting-edge enterprises by integrating the concept of art, business and technology.

RECOMMENDATIONS

Based on the researcher's experience, critically reviewed of literature and analysis of research findings on the current level of entrepreneurship integration into the architectural education in the survey universities, the follow points are proposed as possible recommendations to enhance entrepreneurship development/re-orientation.

Nigerian educational policymakers should endeavour to re-evaluate the university's curriculum system for a proactive entrepreneurship rebranding across all field of

studies in the HLIs. Promotional initiatives such as the use of television, news magazines and the internet to encourage entrepreneurship development and entrepreneurship centres should be established in all the HLIs.

All tertiary institution, particularly, the university should reassess their curriculum, course structure and content to inject entrepreneurship vitality in studio and lecture series courses such as commercialisation, management and marketing principles following the approaches mentioned above.

Udeniable provision of compulsory/voluntary and regular entrepreneurship training programs for the architecture educators in the Nigerian HLIs. It is important to develop inter-faculties integration and linkages for the entrepreneurial cross-fertilization of professional programs in the Nigerian HLIs.

Development of universities-industries collaboration with the purpose of establishing research and entrepreneurship commercialisation is vital for students' job placement and employment creation.

Professional non-governmental bodies (NIA, ARCON, AARCHES and ACA Nigeria) should provide intellectual (tangible and intangible) supports to improve the architectural training and practice in the future, particularly, within the techno-entrepreneurial outlook. For instance, the HLIs' accreditation process ought to emphasize on the curriculum integration of entrepreneurship course content into the architecture programs. Also, Architects' Professional Examination and Registration Council should incorporate entrepreneurship and commercial innovation into their professional assessment criteria for membership and yearly meritorious awards.

Lastly and most importantly, funding is a critical factor in the realization of the Nigerian economic transformation, particularly, Vision 2020. Therefore, adequate funding from all arms of Nigerian government (federal, private and non-governmental organisations) and reasonable allocation and that should be monitored by the Nigerian universities commission and coordinators in the respective universities. Also, programs and research that focus on entrepreneurship development should be encouraged and funded properly.

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