

Employability Future of Graduates of Polytechnic National Diploma (ND) In Architecture

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ABSTRACT

The contribution of the Polytechnic education to the socioeconomic development of Nigeria is inestimable. This is so because it is the sector that is vested with the responsibility of producing the middle-level manpower needs of the country. The National Diploma (ND) education is designed to raise individuals with the practical/applied skills in technical fields. Holders of the ND Certificate in Architecture are the Architectural Technicians who are to assist the professionals in the building industry in carrying out works in both office and site. This study investigated the roles of the architectural technicians as well as their job prospects in the building industry. The study was carried out as an exploratory investigation with extended review of relevant literature. A survey approach was employed in the study. Questionnaires were administered on the staff and students of Department of Architecture, Kaduna Polytechnic. The results obtained from the data revealed that 57% of the respondents believed that there is high job prospect for the National Diploma (ND) graduates in the building industry in Nigeria. Consequently, the paper recommends strict monitoring and supervision of Student Working and Industry Experience Scheme (SWIES) programme by institutional supervisors and the Industrial Training Office to ensure firm compliance to the objectives of SWIES.

Keywords: curriculum; architectural technician; job prospects; building industry.

INTRODUCTION

Buildings and the associated engineering works are the result of careful consideration, compromise and coordination by certain categories of people who have acquired the knowledge and skills required in the building industry. The successful realisation of appropriate design intent and the maintainability of the building produced subsequently, owed its allegiance to increased level of specialization in the building industry today (Emmitt, 2002).

According to Emmitt (2013), building design and construction encompasses a series of complex tasks that are undertaken by a wide range of specialists among whom is the architectural technician. The professionally qualified architectural technician specialises in the application of technology in architecture for the purpose of participating in the execution of various aspects of building project delivery. The expertise can only be obtained in a structured educational scheme with the specific aim of attaining the goal of imparting the requisite knowledge necessary for the skill acquisition (Adebisi, 2015). The objective of Polytechnic education in Nigeria is to offer post-secondary technical education programme leading to the award of diplomas/certificates such as National Diploma (ND) and Higher National Diploma (HND). The products of these institutions will have entry level employment skills to function as technicians, higher technicians/technologists or professionals, depending on the level of training in the field of specialization (National Board for Technical Education [NBTE], 2014). An architectural technician is therefore a person who obtained a National Diploma in Architectural Technology. This study focuses on the role and job prospects of the graduates of the National Diploma in Architecture from Polytechnics in Nigeria particularly in the building industry.

The paper identified the role of National Diploma graduates in the Building Industry; established the capacity and employability of National Diploma graduates in architecture after graduation and their job prospects in the Building Industry

Historical Development of Polytechnic Education in Nigeria

In the 1950s, the colonial administration needed a Technical Training Centre so as to train the personnel competent to handle the management of their private business concerns in the building industry (Ukpai, 2016). It was later deemed necessary to establish government own institutions for training technical manpower for the various governmental establishments. Yaba Higher College of Nigerian Arts, Science and Technology was first established in 1952. Subsequently, branches were established in other places including Enugu, Ibadan and Zaria. In addition, more Technical Institutions were established at Enugu and Kaduna in 1958, Ibadan in 1960 and Auchi in 1964 (Ukpai, 2016). According to the decree 33 of 1979, Polytechnics are established for the purpose of producing middle level manpower to manage the nation's economy (Jahun, 2017). With the establishment of this law, polytechnics are vested with the responsibilities of ensuring that they provide full-time or part-time courses of instruction and training in technology, applied science, commerce and management, and in such other fields of applied learning relevant to the needs of the development of Nigeria in the area of industrial and agricultural production and distribution. The Federal Government established the National Board for Technical Education (NBTE) in 1977 by Act No. 9 LFN. Subsequent amendments took place in 1985 and 1993.

National Diploma Graduate

The National Diploma programme is aimed at producing technicians for the architectural profession. A technician is a worker in a field of technology who is proficient in the relevant skills and technique, with relatively practical understanding of theoretical principle (Hofstrand, 2006). Architectural Technicians work closely with the architects and other professional in the building industry to provide architectural services and solutions on construction sites (Emmitt, 2013). Professionally a qualified architectural technician can participate in the process of making site visits, obtaining tenders for construction work, contributing to meetings and document preparations (Hofstrand, 2006). The objectives of the programme is to produce Architectural Technicians that will be able to read, interpret and trace drawings, letter and stencil drawing sheets, scale, dimension, and blow up and reduce drawings, produce measured drawings, make good freehand sketches, produce basic presentation and perspective drawings, have mathematics and computer skills, build some models, print, and fold and collate drawings for submission, set out simple buildings (NBTE, 2014). These skills have been boosted with the invention of the electronic devices and software's. Nowadays, architectural technologists prepare design proposals using Computer Aided Design and Drafting AutoCADD tools in addition to the traditional drafting techniques.

The Programme Curriculum

It is expected that the curriculum of any good post-secondary technical institution should develop the whole person, first by imparting knowledge and developing skills in a specific field (Marcel-Okafor, 2017). This is done by providing the student with an understanding of the functioning of all the elements of the society. The NBTE in its 'Standards for the Accreditation of Diploma Programmes in Polytechnics and Similar Post-Secondary Technical Institutions (1994)' insists that the curriculum in use must be adequate to produce a technician and therefore reflect the requirements of relevant industry and employers. These attributes could be documented in the course content, textbooks used, students work, lecture notes and descriptive materials available (NBTE, 2014).

The curriculum structure of the National Diploma (ND) programme consists of four semesters of classroom, laboratory and workshop activities and a semester takes a minimum of 17 weeks to complete (15 weeks of teaching and 2 weeks for examinations. SIWES take place at the end of the second semester of the first year (NBTE, 1989).

The curriculum was actually put together with the contributions from the council of Heads of Technological Institutions (COHEADS), representative of Academic Staff of the Universities, of Colleges of Agriculture, the professional associations like the Nigerian Institute of Builders (NIOB), Nigerian Institute of Quantity Surveyors (NIQS), Nigerian Institute of Architects (NIA) and the regulatory bodies; the Council for Regulation of Engineering in Nigeria (COREN), Architects Registration Council of Nigeria (ARCON), Quantity Surveyors Regulatory Board of Nigeria (QSRBN), Institute of Chartered Accountants of Nigeria (ICAN), (NBTE, 1989). However, the current NBTE 'curriculum and course specifications' for the study of ND and HND in Architectural Technology was produced since 1989.

Admission Policy

The NBTE policy guidelines spelt out clearly that, it is the duty of the board to ensure that "only qualified students have been admitted into the programme". The entry requirements for the National Diploma in architectural technology according to the NBTE Curriculum and Course

Specification (1989) include: four credit passes in Physics or Chemistry, Mathematics and any other two subjects from Fine Arts, Technical Drawing, Economics, Woodwork, Metalwork, Building Construction, Geography, Biology, Religious Knowledge, Music, History, Government, English language, with at least an ordinary pass in English language. ARCON (2021) requirements for entry are credit passes in Mathematics, English Language, Physics, Chemistry and any other two subjects but preferably any of the under listed Technical Drawing, Fine Arts, Chemistry, Economics and Geography

Quality of Teaching Staff

The teaching staff adequacy in number, competence, mix and the standard of instruction determines the adequacy and quality of the programme. Instructional goal and objectives are achieved only to the level of staff competence and vision (NBTE, 1989). According to the NBTE regulations (1989), a member of the teaching staff for the National Diploma (ND) programme, is expected to possess at least a good first degree or professional qualification such as full membership with a professional chartered registration council, or both. Lecturer teaching ND in architecture is expected to have at least a BSc or B.Arch. or ARCON registration or both in addition to relevant industrial or teaching experience.

The teachers' evaluation strategies for the students' performance include tests, examinations, studio work, etc.

Job Prospects and Employability of Architectural Technicians in Nigeria

In Nigeria, the public sector (government) remains the largest employer of labour with about 1.2 million employees (Ojo & Fejemisi, 2017). Routine job survey conducted by the National Bureau of Statistics [NBS] (2017) show that the Nigerian economy has continued to create employment in recent years. However, most of these jobs created in 2013, for instance, 54 percent came from the informal sector, and the formal sector (private) accounted for 37 percent, while 9 percent was generated in the public sector (World Bank, 2014). The key issues that needed to be addressed in order to increase the creation of wage employment, particularly in the private sector are, creation of a functional education system, and the development of a rich and formal technical and vocational education system in Nigeria. This is because most jobs in the labour market require middle level manpower (Waziri & Osunkunle, 2010).

In the opinion of Hofstrand (2006), the educational systems in the higher institutions especially polytechnics, do not help the students to develop appropriate skills for employability. This, in his opinion, is so due to total lack of understanding of the operations outside the classroom where the teacher spends all his time and not knowing the trends in the industry. For someone to gain employment after graduating, he or she must possess the requisite skill (employability skill) needed for entry level placement in the industry. The concept of employability refers to the ability of an individual to gain and maintain employment at any given level (Effong & Agboola, 2014). Employability is dependent on the level of practical knowledge and skills an individual possesses. There is a significant decline in employability skills and 'fit' among graduates of higher education in Nigeria for the few jobs available. This has resulted in the decline of trust by industry in the quality of graduates and local institutions certificates in the Country (Sodipo, 2014). Employers are not able and willing to teach such skills and according to Barungi, et al, (2015) employer layoff or in the least, refuse to promote most employees whose behaviours reflect inadequate work proficiency.

METHODOLOGY

Survey design was chosen for this paper. This is in line with Burton's submission that the survey approach allows the investigator to draw on a large sample that is representative of the total population (Burton, 2007). A self-administered questionnaire was used to collect data for the study. The queries and items in the questionnaire were adapted from earlier related published reports. To ensure reliability, the questionnaire was reviewed and pre-tested on 20 students of Hussaini Adamu Federal Polytechnic, Kazaure, Jigawa State, Nigeria. This procedure left the researchers with a 16 item research instrument arranged in 3 parts. Part 1 of the research instrument a. elicited to essential biometric data about the respondents including; sex, age, academic qualification and registration status of the staff with the Architectural professional body Architects Registration Council of Nigeria (ARCON) and Nigeria Institute of Architects (NIA). On the other hand, Part 2 contains questions regarding program curriculum while part 3 covers area of employability and job prospects of the ND graduates in architecture and the building industry at large.

The research question of the study was "what is the job expectations and prospects of the holder of a National Diploma certificate in Architectural Technology in the Building Industry in Nigeria?" the findings presented in this paper result from filed questionnaire applied to 30 students and 7 lecturers of the Department of Architecture, Kaduna Polytechnic, Nigeria. The entire questionnaires were returned by the respective participants. SPSS tool was used to analyse the received data. b.

DATA PRESENTATION AND ANALYSIS

Research Findings on the Staff Questionnaire

(a) Respondents Demographic Data and General Information

The total number of respondents issued with the staff questionnaire is 7. The biometric information generated from the staff respondents shows that 4 (57%) out of the 7 were male while the remaining 3 (43%) were females. In terms of age distribution, the analysis reveals that majority of the respondents (5 or 71%) were within the age range of 26-35 years. This is followed by respondents between the ages of 36-45 years who were 2 in number (28%). The respondent above 46 years is only 1 (14%). Further analysis indicate that all the respondents are Master (M.Sc) degree holders. The majority of the respondents (3 or 42%) had full membership with Architectural professional body (Architects Registration Council of Nigeria (ARCON) and Nigeria Institute of Architects (NIA) while 2 (29%) had associate membership and the remaining 2 (29%) had graduate membership with the Architectural Professional body.

The respondents revealed that the course curriculum of the department has never been reviewed nor updated; in order to increase the employability of the Diploma holders, 5 or 71% suggested the inclusion of sustainability, landscape practice, interior design and maintenance technology into the curriculum and 2 or 29% were of the opinion that new courses should be added to the curriculum. When the respondents were asked on how often they ensure common standards in evaluation for assessing students' progress, the analysis shows that 6 (85%) never ensure common standards while the remaining 1 (15%) do ensure common standards in evaluation for assessing students' progress periodically.

Results on the respondent's perception on their "making significant educational difference in the lives of their students'

the majority of the respondent (4 or 57%) agree with the statement followed by 2 (28%) who strongly disagree while 1 (15%) strongly agree that they are making significant educational difference in the lives of the students.

Further analysis reveals that significant number of the respondents (4 or 57%) were of the opinion that the potential capacity of the student they are teaching for employment is rated as medium followed by 2 (28%) who rated the students capacity to be low and 1 (15%) rated the employment capacity to be high.

(b) To identify the role of National Diploma (ND) Architecture graduates in the Building Industry

6 or 71% respondents stated that the role of the ND graduates in the Building industry is to assist the members of the building team on construction sites and the graduates are best fit to work with construction and property developers while 1 (15%) feel they are best suited for drafting roles in the offices and freelancing (PP). For most important factor for employment, 4 (57%) respondents consider written or communication skills and Information Technology skills; 2 (28%) goes with knowledge of the building industry and 1 (15%) working experience in the building industry.

(c) To establish the capacity and employability of the ND 2 graduates after graduation

Majority of the respondents (4 or 57%) indicated that ND graduates are employable in the Nigerian building industry and 1 (15%) indicated that they are highly employable while 2 (28%) indicated that they are not employable.

(d) To establish the job prospects of the ND graduates in the building industry

In terms of the graduate's job prospects, 4 or 57% of the respondents indicated that the graduates have more job prospects on sites assisting the professionals in building industry. 2 or 28% indicated that the graduates have more job prospects in private firms/offices. Only 1 or 15% indicated that their job prospect is high in freelancing (PP) due to the skills acquired in school. The remaining 1 or 15% indicated that the National diploma graduates have high job prospects working with the government.

Research Findings on the Students Questionnaire

(a) Respondents Demographic Data and General Information

On the part of the students, a total of 30 questionnaires were issued. The biometric information generated from the student's respondents shows that 23 (76%) out of the 30 were male while the 6 (20%) were females. There was no response for 1 of the respondents (3%). In terms of age distribution, the analysis shows that majority of the respondents 16 (54%) were within the age range of 15-20 years. This is followed by respondents between the ages of 21-30 years who were 13 in number (43%). Only 1 (3%) of the respondents indicated being within the age range of 31-40 years.

For choice of course of study, 27 (90%) of the respondents chose Architecture as their first while 3 (10%) had no interest in studying Architecture. 18 (64%) indicated they chose Architecture out of their personal interest; 4 (18%) based on inspiration from role models; 1 (3%) through peer group while another 1 (3%) is through parental guidance and 3 (12%) was undecided. The result is shown in Figure 1

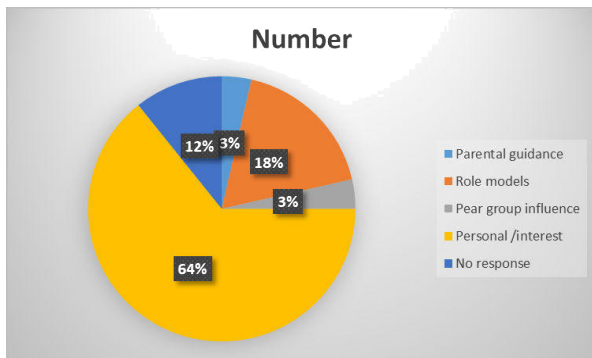


FIGURE 1: Career Inspiration of the Respondents

In terms of qualification for admission, all the respondents indicated having English Language, Mathematics, and Physics at credit level. 4 (13%) indicated having deficiency in Geography while only 2 (6%) indicated not having Chemistry at credit level. Further analysis shows that 15 (50%) of the respondents chose polytechnic as their first choice of institution to study Architecture while 14 (47%) did not choose Polytechnic as their first choice. Only 1 (3%) indicated no response with respect to institution of first choice of study.

(b) To Identify Role of ND Architecture Graduates in The Building Industry

Results on learning and preparation for jobs in the building industry shows that 22 (73%) felt that what they have learnt so far has prepared them for prospective jobs in the building industry while 5 (17%) felt that they are yet to be equipped with adequate knowledge to prepare them for jobs in the building industry. The remaining 3 (10%) shows no response to that effect. After this analysis the researchers sought to ascertain the respondents level of proficiency in four important skills required for prospective job applicants in the building industry. Out of the 22 (73%) who felt that they are fully prepared for job prospects in the building industry, the majority of the respondent 14 (63%) being very good at manual drafting while only 6 (27%) indicated being excellent in and another 6 (27%) also indicated being good followed by 3 (13%) who did not show any response. The last 1 (5%) indicated being fair at manual drafting.

With respect to Computer Aided Design (CAD) and 3-Dimensional drawings, 10 (45%) shows that they are very good. Another 10 (45%) also indicated being good followed by 4 (18%) who indicated that they are fair. Only 3 (13%) indicated being excellent at CAD and 3-D drawings. The remaining 1 (4%) indicated no response.

In addition, for ranking in model making. The majority 14 (63%) indicated being good followed by 6 (27%) who were fair. 4 (18%) indicated being very good and 1 (5%) indicated being poor in model making. The remaining 3 (13%) indicated no response to that. In terms of Site supervision experience, though not all of the respondents had site supervision experience, the majority of the respondents 18 (82%) indicated that they are fair on that. Only 2 (9%) indicated being good at site supervision while the remaining 2(9%) did not show any response to that effect.

Further analysis reveals that the majority 26 (86%) of the respondents don't even know which cadre best describe their qualification after graduation. This is because 24 (80%) indicated that they are best described as Architects and 2 (6%) indicated that they are best described as Architectural Technologist. Only 4 (14%) indicated that they are best described as Technicians.

(c) To Establish the Capacity and Employability of The ND Architecture Graduates After Graduation

As a pre-requisite for securing a job in the building industry, a prospective applicant is expected to acquire a prior work experience. The analysis shows that 12 (40%) of the respondents had experience in site visits and 6 (20%) had experience in both site visits and vacation experience with firm/construction company. Only 1 (3%) had experience in both site visit and worked with material production company. The remaining 4 (13%) had no prior experience. The analysis also indicated that 18 (60%) are hoping to get permanent jobs while 12 (40%) temporary jobs. 11 (37%) are in the opinion that the building industry has adequate employment capacity for Diploma graduates while 6 (20%) believe that the building industry cannot employ all diploma graduates. The remaining 12 (40%) are not sure. Only 1 (3%) indicated no response.

(d) To Identify the Job Prospects of The ND Architecture Graduates in The Building Industry

Majority of the respondent (18 or 60%) indicated preference in working with construction companies, 8 (27%) with consultancy firms, 3 (10%) with government agency and lastly 1 (3%) with material production company. None of the respondents indicated preference in freelancing (PP). Further analysis shows that 14 (46%) are likely to work in their choice of preference while 7 (23%) are not very likely to work in their place of choice. Only 5 (16%) are not sure if they can secure a job in their place of choice. The remaining 3 (10%) indicated no response to that effect. In analysing individual personal qualities, 17 (56%) indicated it is very important having a strong desire to prove themselves, 9 (30%) indicated that it is important while 3 (10%) indicated is not that important. Being a team player is very important to 9 (30%) and it is important to the majority 13 (43%) of the respondents. Only 5 (17%) indicated that it is fairly important. On the final note, All other individual personal qualities were ranked by the majority 18 (60%) as being very important, 6 (20%) important and 4 (13%) fairly important. The remaining 2 (7%) indicated no response.

DISCUSSION OF FINDINGS

Result shows that 57% of respondents were males while 43% were females. This hints the likely difference in male popularity in teaching roles in the polytechnics. Most of the respondents were between the age of 26 and 35 years. These age distributions partly explain their youthfulness and enthusiasm for teaching. The finding of this study in terms of respondent's knowledge and academic qualification tallied with related study on the subject by Jahun (2017). The fact that majority of the respondents 3 (42%) had full registration with the Architectural Professional body (ARCON/NIA), cannot be surprising considering all the respondents were Master (M.Sc) degree holders.

It is also possible to say that the polytechnic curriculum is not reviewed or updated as it supposed to be considering that all respondents accented to have never witness the revision or updates of the curriculum in the department. This line of reasoning suggests that there may be some limitations that require attention in order to increase the employability of the diploma graduates.

The respondents have made positive impacts on the educational difference in the lives of their students. This is evident in the results of the study which shows 47% of the respondent agreeing to have made significant impacts. The consensus of the overwhelming majority of the respondents is that the program would help the graduates become innovative, industrious and self-reliant.

Entrepreneurship skills acquired in the course of their study will broaden their knowledge by making them aware of alternative use of their qualification as ND graduates. This will ultimately widen the employment options and would need not to rely solely on office-based jobs.

However, worthy of note is the large number of respondents (71%) who feels the best fits of ND architecture graduates in the building industry in Nigeria is working with construction companies and property developers. This may have accounted for the many of the respondents (57%) indicating that ND graduates are employable in the Nigerian building industry.

On the part of the student respondents, Result shows that 76% of the respondents were males while 20% were females. This also hints the likely difference in male popularity in student population in the polytechnics. The analysis also shows that majority of the respondents 54% were within the age range of 15-20 years. Similarly, the age distribution partly explains their youthfulness as students. The findings on the study reveals that 90% of the respondents chose Architecture as their first-choice course of study while 10% had no interest in studying Architecture. This has correlation with the findings in the qualification for admission. The majority of the respondents indicated having English, Mathematics, Physics and either Geography or Biology without Chemistry. This points out that the few respondents that had no interest in polytechnic found themselves there as a result of deficiency in one subject or the other. In terms of choice of Architecture, 64% shows that they made the choice out of personal interest 3% were guided by their Parents.

For the role of the graduates, both respondents were of the opinion that the graduates have better roles to play on site as assistants to the professional. From the staff view 6 or 71% agree with that while 22 or 73% agreed to that from the student view. Both findings also show that besides being an assistant, the next role of the National diploma architecture graduates is the drafting in offices as draughtsmen. In each on 15% indicated that the graduates have roles in hand work basically using the skills they have acquired from school.

With respect to employability, 4 or 57% has correlation with the 18 or 40% of the student's skills on site supervision experience. This shows that National diploma graduates have capacity and are employable by the professionals of the building industry to work on site. Both the staff and the student respondents are of the opinion that National diploma graduates will face competition while searching for jobs. This is in line with the study of Jahun (2017) who stated that the challenges most polytechnic graduates will face is completion with the university graduates.

The National Diploma graduates have high job prospects working with construction companies as indicated in both the staff and student responses. This is followed by working with consultancy firms and in government offices. Although, a considerable number indicated that the National diploma graduates have prospects in freelancing (PP). It is paramount that every prospective applicant should have something doing before securing a job, most of the National diploma graduates come handy as they can start doing something that can sustain them prior to getting a salary job.

CONCLUSION

The career prospects of National Diploma graduates of Architecture from the polytechnics cannot be over emphasized. Both the private and public sectors are good playing ground for the graduate's employability. Their job opportunities range from government establishments (Ministries, State and Local Government) to private-oriented outfits. Career opportunities from estate developers, firms and construction companies sectors require a large number of manpower. This paper therefore exposes secondary school leavers and individuals interested in becoming Architectural technologist as a career to the fundamental requirements of the programme as a discipline. It gives interested students pre-knowledge idea of what the discipline is like as well as equipping students with basic information on options and areas where students can specialize and/or at what level they can be admitted in the course in the Nigerian Polytechnic. It further gave the National Diploma (ND) graduate an insight of areas of job prospects after graduating from the polytechnic as architectural technologist., the paper recommends strict monitoring and supervision of Student Working and Industry Experience Scheme (SWIES) programme by Institutional Supervisors and the Industrial Training Office to ensure firm compliance to the objectives of SWIES so as to improve on the students' knowledge and skills, consequently creating an opportunity to be employable.

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