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Perceived Proficiencies Possessed by Brickwork/ Block Laying Prospective Graduates in Nigerian Technical Colleges

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Abstract: This study examined proficiencies possessed by brickwork/ block laying prospective graduates in Nigerian technical colleges. The descriptive survey research study was guided by two research questions. The study was carried out in Ekiti State with 25 participants. Practical Skills in Brickwork/ Block laying Questionnaire (PSBBQ) containing 10 items was the instrument developed and used for data collection. It was validated by 3 experts and tested to obtain a reliability coefficient of 0.87 using Cronbach Alpha. The PSBBQ was used for collecting data from 25 respondents. The data collected were analyzed using descriptive statistics of mean and standard deviation to answer the research questions raised for the study. The study found that brickwork/ block laying prospective graduates are deficient in building drawing skills. The study recommended that that technical colleges be well equipped both in human and material resources needed for training the students to become proficient graduates.

Keywords: Skill Acquisition, Practical Skills, Technical College, Brickwork/ Block laying

1. Introduction

Skill acquisition and development are essential in driving the needed growth of a nation as it remains an important component of a functional educational system in the world over (Olakotan, 2022). As essential as skill acquisition is to national growth, preparation towards inculcating it in rightful individual who wants it and wants to progress by it becomes essential as well. This is because preparing individuals at the craftsmanship level to be responsive to the needs of the society becomes the responsibility of the nation's Technical Colleges. Technical colleges are established with the intent of transmitting the necessary skills required to enhance the production of enterprising and autonomous craftsmen and preparing them for either self-reliance or paid employment (Olakotan, 2021; Federal Government of Nigeria (FGN), 2013). Technical College programs are skill-oriented and performance-based as its curriculum centers on psychomotor, cognitive and affective domains ((FGN, 2020; National Board for Technical Education (NBTE), 2019; Odu, 2019)

It is in the light of this that much attention is focused on the psychomotor or practical component of studies in Technical Colleges, and this is done without neglecting the critical areas of cognitive and affective components. The psychomotor component requires that the appropriate materials necessary for effective training of the craftsmen in his/her chosen trade must be available. The need for this stems from the fact that allowing students to acquire hands-on experience while still in the training institution remains one of the best practices of acquiring skills in Technical and Vocational Education and Training (TVET) via exposure to practical activities and appropriate guidance (Olakotan, 2022; Lemo & Olakotan, 2016).

There are a few numbers of trades offered in the Nation's Technical Colleges, one of the few trades that holds practical skills and competence in high esteem is Brick work/ block laying.

Brickwork/Block laying is a branch of environmental studies which deals with building construction, with emphasis on the building team or personnel involving in the construction, building industries and the process of construction, principles and practice of construction, tools, equipment and materials and organization of building industry, like the client, architect, quantity surveyor, engineer, land Surveyor, builders and constructors. Dokubo (2016) describe, building construction as any industry that has the main objective of constructing, renovating, demolishing, relocating, maintaining and repairing of buildings, chimneys, sporting, recreational activities, waste disposal, fencing, landscaping, structural works using building equipment and tools.

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Bricks are often made of clay while blocks are generally made of concrete. Brickwork/block laying involves the act of drawing and being able to translate what has been drawn to a structure. It involves building a wall by placing blocks/bricks on each other usually with cement between the brick/block surfaces. Odu (2019) posited that brick work/block laying students need to have practical skills in mortar application, batching, curing and other practical skills related to the trade. The operations involve the skills required in accomplishing given tasks in mixing of mortars by hand, molding of blocks, laying of blocks, rendering of walls, wall and floor tiling, pointing to walls, creating openings in walls (lintel and arches). It also involves slump test (workability test on concrete), placing concrete in positions, application of admixture to concrete, compaction, curing of blocks and concrete and fixing of concrete joint materials (Ideozu & Puyate, 2022). The training is to be carried out to the extent that it gives the learners a productive ability with which they can secure and hold employment and be able to profit by it. This is justified by the special attitudes and Interest theory propounded by Prosser and Quigley (1949). Block-laying and brickwork at Technical Colleges are geared towards the graduation of craftsmen who have skills, knowledge and attitude to meet the demand and needs of the industries and the society at large.

The engine of economic growth and social development of any nation are skills and knowledge. Practical activities that culminate into attaining proficiency are the nucleus of skill acquisition in TVET. Thus, It could be deduced that no meaningful skills can be acquired if practical activities do not support theoretical contents in TVET programs (Lemo & Olakotan, 2016; Waskitoa, Adila & Hendri, 2020). A person is said to acquire skill when he/she can finish a given piece of work at a given time with minimum error. To possess a skill is to demonstrate the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual through repetition or practice affirmed (Ibidapo, 2021).

Proficiency is also regarded as Skill acquisition and can be said to be one of such ways of learning and as such is a process by which individuals are exposed to the learning and continuous practices in a particular task till the learner becomes proficient in the operation and can perform them when required. (Aliozor & Mgbeahurike in Ibidapo,2021). Usman (2020) citing Prosser and Quigley's environment habit theory stated that, skill training will be efficient in proportion as the environment in which the learner is trained is a replica of the real environment in which he/she must subsequently work. Skills are acquired first and developed subsequently through utilization and practice. Therefore, practical skills entail performance/tasks done by hand or with human intervention using equipment, tools or technology requiring guidance, force or movement. (Dokubo, 2019). Therefore, provision should be made for Technical College students of brickwork/block laying to practice skills acquired, as classroom learning, and workshop training goes hand in hand in ensuring the production of well-trained craftsmen.

The National Board for Technical Education (2020) defined a Workshop environment in a college setting as the introduction of Industry into the learning situation, designed to equip students for work in their chosen occupation as demanded by the labor market. The workshop provides a unique learning environment where learners may test, construct, disassemble, repair, create, imagine designs, experiments, and study (Ezeji, 2015). It is therefore indispensable in the acquisition of skills. School Workshops offer opportunities for practical training of students in skill acquisition in their technical trade areas for future development of the key sectors of the economy to meet the basic needs of building construction, electricity, roads, and machinery, among others. Although Increased emphasis has been placed on skill acquisition in Technical Colleges in Nigeria to equip students with useful skills and to improve their employability opportunities, the practical tasks carried out need to be assessed to generate and sustain confidence as well as to maintain standard (Okoro, 2019).

Goton in Olojuolawe (2022) stated that a lack of problem identification, practical guide or instrument for teaching and assessing student's work, diagnosis, evaluation, and decision making had led to the decline in educational standards in Technical Colleges in Nigeria. Olojuolawe further stated that the over-dependence on academic qualification has failed to guarantee quality jobs and that the existence of a skill gap between the school and the industry needed to be bridged. Garba (2019) noted that some Technical College Teachers assess students' practical project performance by taking cursory look at the finished work/product and assigning grades they like without inspecting the stages of production of the practical project. This might be due to lack of valid instruments for such assessment or non-challant attitude of the teachers. Also, scholars have recently observed that students contract their projects to artisans because the teacher is interested only in seeing the final product and thus condemned product assessment but rather process assessment (Olakotan & Oke, 2021).

1.1 Purpose of the Study

This study assessed proficiencies possessed by brickwork/ block laying prospective graduates. Specifically, the study sought to identify:

1. Practical skills in block making possessed by brickwork/ block laying prospective graduates.
2. Practical skills in building drawing possessed by brickwork/ block laying prospective graduates.

1.2 Research Questions

To guide this research, the following questions were raised.

1. What are the practical skills in block making possessed by brickwork/ block laying prospective graduates?
2. What are the practical skills in building drawing possessed by brickwork/ block laying prospective graduates?

2. Methodology

This study adopted a descriptive survey research design. Descriptive survey research is a type of research in which a group of people is studied by collecting data through the use of questionnaire or interview on people considered to be representative sample of the entire group. Nworgu in Olakotan (2015). The design was considered suitable for this study since it sought the opinions of prospective graduates of Technical Colleges and no variable was manipulated. The population for this study was twenty-five (25) prospective graduates of Brickwork/block laying trade of Government Technical College, Ikole- Ekiti, in Ekiti state.

Purposive sampling technique was adopted and used to select Government Technical College Ikole - Ekiti. The prospective graduates in year three, available were used. In all, 25 students were the participants sampled for the study.

The main instrument that was used for this study was Practical Skills in Brickwork/ Block laying Questionnaire (PSBBQ). The questionnaire was based on adapted Likert Scale ratings viz:
Strongly Agree (SA) – 4, Agree (A) – 3, Disagree (D) – 2 Strongly Disagree (SD) – 1. The face and content validation of the instrument was ascertained by three experts, while the reliability of the instrument was ensured using Cronbach Alpha and a coefficient of 0.87 was obtained. A direct delivery technique was employed in the administration of the questionnaire. This approach was taken to minimize instrument mortality. The data collected were statistically analyzed using descriptive statistics of mean and standard deviation. A mean of 2.50 and above was considered positive and agreed upon, while a mean rating of less than 2.50 was regarded as negative and disagreed upon

3. Results

To answer research question one, mean and standard deviation were used. The result of the computation is as presented in Table 1

Table 1: Practical skills in Block making

S/N	Item Statement	$\bar{\bar{X}}$	S. D	REMARKS
1	I can identify and use all block molding tools correctly, ensuring that Workshop safety is observed	3.50	.51	Agree
2	I can practice curing skills efficiently	3.35	.59	Agree
3	I know what cubing is and can carry it out well	3.35	.49	Agree
4	I am well learned in block molding skills and can use it.	3.45	.51	Agree
5	I can identify the raw materials required in Molding of blocks and can mix them in aggregate proportion.	3.50	.61	Agree

Source: Field study, 2023

The data presented in Table 1 revealed that all the 5 items (items 1 - 5) had a mean range of 3.35 to 3.50. This indicated that all the 5 items were agreed upon as practical skills acquired by prospective graduates of Technical Colleges in block making, because their mean(s) were above the cut-off point of 2.50. The standard deviation of the items also ranged from 0.49 to 0.61. This showed that the respondents were close to one another in their responses and that they were not very far from the mean.

Table 2: Practical skills in Building Drawing

S/N	Item Statement	$\bar{\bar{X}}$	S. D	REMARKS
6	I can select appropriate instruments and use them effectively in the production of building drawings	2.36	1.22	Disagree
7	I can prepare a preliminary sketch design of a modern 3-bedroom bungalow	2.21	1.19	Disagree
8	I can draw the elevation of a building to a suitable scale.	3.57	.65	Agree
9	I can draw accurately the site plan of a building	3.00	1.11	Agree
10	I can draw the foundation plan of a building to scale	3.71	.47	Agree

Source: Field study, 2023

The data presented in Table 2 revealed that 3 items (8, 9 &10) had a mean ranging from 3.00 to 3.71. This indicated that the respondents agreed upon the 3 items as practical skills acquired by prospective graduates of Technical Colleges in building drawing, because their mean(s) were above the cut-off point\ of 2.50. The standard deviation of the items also ranged from 0.47 to 0.65. This showed that the respondents were close to one another in their responses. Items 11 and 12 were disagreed upon which had a mean ranging from 2.21 to 2.36, below the cut- off point of 2.50, the standard deviation of the items also ranged from 1.19 to 1.22.

4. Discussion of Findings

In research question one, the findings as shown in Table 1 revealed that Prospective graduates of Technical Colleges are not 100 percent efficient in practical skills required in Block making. The findings of this study revealed that, Students can use all block molding tools correctly, ensuring that all workshop safety is observed. Prospective graduates can practice curing skills and Cubing. Furthermore, Students are experienced in molding skills and can identify the raw materials needed in the molding of blocks and mix them in aggregate quantity. The finding also signified that these skills items are very suitable and useful in brick work/block laying.

These findings are in consonance with the report of Odu (2019) who posited that brick work/block laying students need to have practical skills in mortar application, batching, curing and other practical skills related to the trade. Olojuolawe (2022), also, opined that the over-dependence on academic qualification has failed to guarantee quality jobs and that the existence of a skill gap between the school and the industry needed to be bridged. Therefore, knowledge and workforce must bear a relationship with the demand of the labour market. Hasanefendic et al. (2016) stated that the school should be responsible for the training of individuals to enter the labour market, and this is achievable through constant change of curriculum to adjust to the environment needs.

In research question two, the findings as shown in Table 2 revealed the practical skills in building drawing possessed by brickwork/ block laying prospective graduates. The findings revealed that, students cannot perfectly select and use appropriate instruments needed in the production of Building drawing. Prospective graduates cannot prepare a preliminary sketch design of a modern 3-bedroom bungalow. However, most of the students can draw the elevation of the bungalow to a suitable scale and can also draw a site plan and foundation plan. These findings are in consonance with the study of Olaitan (2016) who observed that in Nigeria today, many products of Technical Colleges and other vocational institutions are found in the streets of towns and cities without job, because their training is inadequate and irrelevant to the needs of industries and society at large. Prosser and Quigley's environment habit theory, as cited by Usman (2020) also stated that, skill training will be efficient in proportion as the environment in which the learner is trained is a replica of the real environment in which he/she must subsequently work. This denotes that it will be deceitful to train students using manual drawing tools only, while the actual job required the use of modern tools such as CAD. Training in building drawing using obsolete tools will certainly produce graduates who will not be relevant on the job unless given a new training to meet the desire of their employers.

5. Conclusions

This study has provided the adequate enlightenment on the necessity of brickwork/block laying graduates being skilled and self-reliant with a major aim of solving national problem of unemployment and technical colleges producing unemployed graduates. The findings of this study have revealed that when students are equipped with the appropriate knowledge and skills they would easily fit into the world of work. On this note, it is recommended that technical colleges be well equipped both in human and material resources needed for training the students to become proficient graduates.

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