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Capacity Building Needs of Building Construction Lecturers in Colleges of Education (Technical) in North-Eastern Nigeria

Chioke Evelyn Nwamaka[1] & Engr. Collins O. Mbah[2]
School of Technical Education
Federal College of Education (Technical) Potiskum, Yobe State, Nigeria

ABSTRACT

The study was carried out to determine the capacity building needs of building construction lecturers in Colleges of Education (Technical) in North-Eastern Nigeria. The study was guided by five research questions and five null hypotheses. Survey research design was used for the study. The population for the study was 131 respondents, comprising 104 Building Construction lecturers from two Polytechnics, two Federal Colleges of Education (Technical) and three Colleges of Education that offer Building Construction program and 27 building supervisors in North-eastern zone. The entire population was used because it was manageable. The instrument for data collection was a structured questionnaire developed by the researchers. The instrument was validated by three experts. The Cronbach Alpha coefficient method was used to determine the internal consistency of the Instrument and the overall reliability coefficients for the importance and performance columns were 0.88 and 0.91 respectively. The questionnaire was administered on the respondents by the researcher through personal contact and with the help of three research assistants, one for each State. The data collected were analyzed using Mean and Improvement Need Index (INI) to answer the research questions while t-test was used to test the hypotheses at 0.05 level of significance. The result of the study showed that the capacity building needs of building construction lecturers in sub-structure was not needed because the level at which the lecturers perform the skill was equal to the level at which the skill is needed. Findings also showed that the capacity building needs of building construction lecturers in flooring is not needed because the level at which the lecturers perform the skill was higher than the level at which the skill is needed. However, result showed that the capacity building needs of building construction lecturers in walling, roofing, columns and beams is needed because the level at which the lecturers performed the skill was lower than the level at which the skill is needed. It was recommended among other things that the Federal government should ensure that the necessary and relevant capacity building that are required with special reference to tools and machines are adequately provided to all Colleges of Education (Technical) and polytechnic.

Keywords: Technical education, building technology, sub-structure, building construction and capacity building.

INTRODUCTION

Technical education is the type of education that is concerned with imparting knowledge, skills and attitudes to learners and preparing persons for the world of work. According to Federal Government of Nigeria (FGN) (2004), Technical education is the study of related sciences and the acquisition of practical skills, attitude, understanding and knowledge relating to occupations in various sectors of economic and social life. Makama (2005) stressed that Technical education is the force that can be used to bring about change in technology as well as the economy of the nation. This implies that Technical education is the type of education that equips one with skills for sustainable living in the society. It includes specialized area such as building technology (Okoro, 2006).

Building technology is one of the courses offered in Colleges of Education (Technical). Onwuka, (2005) defined building construction as erection and maintenance of any structure in which people work or dwell. Amobi, (2006), stated that Building, either as temporary, permanent or monumental structure needs to be properly planned, designed, constructed and maintained to obtain the desired satisfaction, comfort and safety. A structure such as a house which has roof and walls didn't become a structure by miracle; the human capacity is involved to erect a building. Building construction involves the Technical methods, skills, processes, techniques, tools and raw materials needed for the erection and maintenance of building. Constructing a building involves many personnel in different professional areas such as Architects, Quantity Surveyors, Building Engineers, Town planners, Builders and Technicians. These personnel in one way or the other contribute in the building industry most especially building supervisors. A building supervisor facilitates, overseers, coordinates and drafts the daily activities of building construction (Bamisile, 2004). Building construction involves the assembly and erection of structures, primarily those used to provide shelter. Building construction consists of two basic components: the sub-structure and the super-structure (Punmia, 1993).

Sub-structure is the lower portion of the building, located below ground level, which transmits the load of the super-structure to the sub-soil or rock (Robert, 2001). Sub-structure is therefore that part of the structure which is in direct contact with the ground to which the loads are transmitted. The ability of a building to remain firm for several years on the ground upon which it is built depends on the strength of its sub-structure which carries the weight of the walls and roof. The loads naturally cause settlement of the building. If settlement is light and evenly distributed, no damage is done to the building, if the settlement is extensive and unequally distributed it may result in failure of the foundation, cracked wall, distorted door and window openings or walls that are out of plumb. According to Gupta (2005), super-structure consists of floor, wall, roof, columns, beams, finishing and fittings.

Floors are the horizontal elements which divide the building into different levels for the purpose of creating more accommodation within a restricted space, and provide support for the occupants, furniture and equipment. According to Ezeji (1984), Lyall, (1992) the major purpose of floors is to support the inmates of a building together with their belongings. Floors are classified as basement, ground, and upper floors. The techniques used in the construction of any type of floor will depend on its functional requirements. The form of construction selected influences the provision of other elements. The thickness of floors will affect the height of walling, and the choice between a solid or suspended ground floor, location, services and sizes of the heating installations. Floor needs to satisfy functional requirements which include withstanding the loads that will be imposed upon them, safely supporting the occupants and their belongings. But in other classes of building, such as factories, ware houses and libraries, the floors may be subjected to much heavier loads and must be of sufficient strength to carry the walls.

Walls are the most essential components of a building. The primary function of a wall is to enclose or divide space of the building to make it more functional and useful. Walls provide privacy, afford security and give protection against heat, cold, sun and rain. Harcis and Maccter (2005), affirm that walls must be of sufficient thickness to keep the stresses within the safe compressive stresses of the materials in the wall. Tensile stresses may be induced by unequal loading on the wall and the bonding and joint of the bricks or blocks must be able to withstand them. Merits (2000) stated that walls comprise the assemblage of incombustible materials such as stone, block, brick, structural clay, concrete, and glass. The units are bonded together with mixture of substance called mortar or other cementous materials. Walls terminate at the roof.

A roof, as the uppermost part of the building, provides a structural covering to protect the building from weather (i.e. from rain, sun, wind). Structurally, according to Punmia (1993), a roof is constructed in the same way as an upper floor, though the shape of its upper surface may be different. Basically, a roof consists of structural elements which support roof coverage. The structural elements may be trusses, portals, beams slabs (with or without beams), shells or domes. The roof coverings are Asbestos Cement

Sheets, (A.C. sheets), Galvanized Iron (G.I.) corrugated sheets, wooden shingle, tiles, slates, or slab. Materials that cover flat roofs should allow the water to run off freely from a slight inclination (Naeim, 1999). Modern flat roofs tend to use a continuous membrane covering which can better resist pools of standing water. These membranes applied as continuous sheet, though sealant and adhesive are used for bonding multiples sheets columns carry the loading of the building including that of the roof.

Column is a building component or element supporting a load by axial compression. Ronaldo (2003), opined that columns are vertical load-bearing elements which are normally loaded in compression. A short column or strut fails by deforming and crushing when its compressive strength is exceeded (Edward, 2001). A long, slender column fails by deflecting to the side and collapsing, or bucking, without ever exceeding its elastic limit (Naeim, 1999). Column can be at an edge, vertical or horizontal, unlike a beam. Ronaldo (2003) opined that column is one of the most familiar architectural icons. In every multi-story building, the structure depends on number of columns, for stability. Columns are made of different materials that have minimal compressive strength. Columns are usually made of reinforced concrete (Edward, 2001). All columns are structurally linked to the beams.

Beam is a flexural member designed to carry uniform or concentrated line loads. Alan (2002), stated that reinforced beams are widely used as flexural members. The most common applications of reinforced beam include girders supporting floor and roof system, arches and lintels spanning together for windows and doors. A beam may act as a primary member in beam-column frames or as support slabs. Beams are categorized as perimeter beams or non-perimeter beams in building construction (Naeim, 1999). Building construction is one of the courses offered in Colleges of Education (Technical) as contained in NCCE (2009) minimum standard.

Building construction programme as outlined in National Commission for Colleges of Education (NCCE) minimum standards (2009) are: Introduction to building construction, building science/material technology; Building drawing, Building maintenance/repairs, Land surveying, Construction method and Construction management. Introduction to Computer Aided drafting (CAD) to introduce the students to the use of new technology in design, construction and drafting of building, in order to fit into the world of work properly. According to Osinem and Nwoji (2010, lecturers are posed with problems how to use new technology and keep up with teaching method in Colleges of Education (Technical).

Colleges of Education (Technical) are parts of the tertiary institutions distinguishable in Technical Education sub-sector whose primary role is to produce middle level personnel for commerce, industry, agriculture, health care and teaching. The philosophy of the Nigeria Certificate in Education (Technical) is to provide Technical teachers with the intellectual and professional background adequate for teaching Technical subjects and to make them adaptable to any changing situation in technological development not only in the country but also in the world at large (NCCE, 2002). Therefore, the degree of success of these Colleges in achieving these challenges, depends not only on the number of skilled people they can turn out, but more on the in-depth of the skills and the degree of relevance of these skills to the prevailing situation. These depend on the capacity of lecturer.

The effective implementation of any Technical education curriculum depends on the quality of the lecturers and their capacity to effectively manipulate, operate, use tools and equipment that are available for training of the students. Lecturer is an individual that has been trained pedagogically and in the subject matter to impart skills, knowledge and attitude to students. According to Ede and Olaitan (2009) a lecturer is a person who communicates knowledge, skills and attitude to someone in a school. Obanewa (1994) stated that a lecturer is someone who has undergone the necessary and recommended training in a teacher preparation programme. Okoro, (2006) described a Technical lecturer as an individual who has acquired adequate skills and knowledge in an occupational area and fully trained to impart skill and knowledge to others. Lecturers in Colleges of Education (Technical) are equipped by the training they received at the Universities to meet the aims of Technical education. A lecturer of building construction is someone who has undergone the necessary and recommended training in building construction and has the responsibility of imparting the context of building construction effectively to students of Technical institutions including tertiary.

Federal Government of Nigeria (FGN) (2004) stated that tertiary education is that type of education which is given after secondary education in Universities, Colleges of Education, Polytechnics, Monotechnics. Hamza (2010) pointed out that tertiary institutions are established to strengthen the production of middle level manpower in areas of national priority. The specific aims of Colleges of Education (Technical) are to: Provide well qualified and competent Nigeria Certificate in Education (NCE) teachers in various fields, Prepare the students for degree programme, Equip the graduates with the right skills in the disciplines to engage in a life-long work (NCCE, 2002; Isyaku, 2002).Students are expected to acquire valuable skills in a course such as building construction to be well trained in order to impart the new course outline.

These emerging technologies in building construction require skills for teaching theory and practical in terms of erection, materials, assemblage, finishing. However, lecturers in building technology lack the skills in emerging technology. This is manifested on the inability of the students that pass through Colleges of Education (Technical) to exhibit the emerging technology skills on building construction. Ezeji, (1986) and Anaele (2010) observed that building construction industries find it difficult to employ young graduates of building, because they do not possess the emerging technology skills needed to fit into today's building construction industries. Therefore, this calls for capacity building of the lecturers with the fact that teaching and learning are opposite sides of the same coin.

Capacity building is the process by which individuals, groups, organizations, institutions and societies increase their abilities to perform core functions, solve problems, define and achieve objectives, understand and deal with their development needs in a sustainable manner. United Nations Environment Program (UNEP) (2006) defined capacity building as the building abilities, relationship and value that will enable organization, group and individual to improve their performance and achieve the objectives. Olaitan, Alaribe and Nwobu (2009) referred to capacity building as efforts geared towards improving the level of knowledge, skills and attitudes possessed by an individual for proficiency in a given task or job. In the context of this study, capacity building is an effort geared towards making improvement on what building construction lecturers are already doing to increase productivity. Anaekwe (2007) referred to a need as a short fall between what is available and what is expected. Osinem and Nwoji (2010) opined that need may arise anytime an actual condition differs from a desired condition in humans or people, or aspect of organization performance. The functional ability of lecturers of building construction is to demonstrate knowledge, skills and attitudes required in teaching building construction. The inabilities to perform create a gap that needs to be addressed through capacity building. To fill this gap, it requires capacity building. Therefore, for NCE (Technical) Building construction students to be well trained, the building lecturers must possess the relevant building construction skills. It is against this background that the study is designed to determine the capacity building needs of building construction lecturers in Colleges of Education (Technical) in North-east Nigeria.

Statement of the Problem

Ideally building construction lecturers have to possess reliable knowledge and skills to impart to the learners. This would ensure the students that successfully complete the Nigeria Certificate in Education (Technical) NCE (T) in building construction are equipped with the required employable skills. Lecturers of building construction do not keep their knowledge and skills up to date by periodic retraining and capacity building. There is high probability that students of building construction in Colleges of Education (Technical) will acquire relevant skills for competence and adaptability in the world of modern building construction, if the lecturers possess the required skills.

The inability of building construction lecturers to impact the necessary skills to building construction students has contributed to the high level of unemployment among the students in the country. Employers find it difficult to absorb young graduates because they do not possess the emerging technology skills needed to fit into today's building construction industries. Unemployment among building construction graduates of Technical institutions has mismatch between the skills provided and job requirements in the world of work. The emerging technology skills in building construction are in constant changes because of technological development in materials, construction methods and skills.

Lecturers of building construction in Colleges of Education (Technical) require capacity building especially in innovations and emerging technologies in building construction. This however, may be responsible for the lack of acquisition of practical skills by the graduates of building construction in the institutions. Therefore, in order to improve the quality of the lecturers of building construction, there is need for continuous updating of their knowledge through capacity building.

Research questions

Three research questions were formulated to guide the study:

1. What are the capacity building needs of building construction lecturers in sub-structure?
2. What are the capacity building needs of building construction lecturers in flooring?
3. What are the capacity building needs of building construction lecturers in walling?
4. What are the capacity building needs of building construction lecturers in roofing?
5. What are the capacity building needs of building construction lecturers in columns and beams?

Hypotheses

The following null hypotheses were postulated to direct the study:

1 There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in sub-structure

2 There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in flooring.

3 There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in walling.

4 There is no significant difference in the mean response of building construction lecturers and building supervisors on capacity building needs of lecturers in roofing.

5 There is no significant difference in the mean response of building construction lecturers and building supervisors on capacity building needs of lecturers in columns and beams.

MATERIALS AND METHODS

The researcher adopted a survey research design. Survey research is concerned with condition or relationships that exist, practices that prevail, beliefs or points of view felt, or trends that are developing (Cohen, Manion & Morrison, 2009). The study was carried out in North-Eastern States of Nigeria namely Bauchi, Gombe, Yobe, Borno, Taraba and Adamawa States. The study was carried in the zone because despite years of existence of the Colleges of Education (Technical) and polytechnics graduates of building construction in the zone still lack adequate practical skills for the world of work which may be as a result of the training they still received while in the colleges. There was no sampling technique used as the population comprised of 131 respondents. Out of 131 respondents, 104 Building Construction lecturers, two from Polytechnics, two from Federal Colleges of Education (Technical) and three from Colleges of Education that offered Building construction program and 27 building supervisors in North-eastern zone which is manageable size of sample for the study.

Structured questionnaire were used to collect the data used for analysis. The questionnaire was divided into three sections. Section A was designed to determine capacity building needs of lecturers in sub-structure. Section B sought for information on capacity building needs of lecturers in flooring while Section C was on information on capacity building needs of lecturers in walling. The questionnaire had two types of response scale; the perceived importance and expressed performance scale. The response categories were assigned numerical values of 5, 4, 3, 2 and 1 respectively.

The Cronbach Alpha coefficient method was used to determine the internal consistency of the Instrument. Fifteen copies of the questionnaire were trial tested on ten building construction lecturers. Result was computed using statistical package for social science (SPSS) version 20, to obtain the reliability coefficient of the instrument. The reliability coefficients of clusters A – C for importance and performance columns were (0.89, 0.82), (0.79, 0.81) and (0.91, 0.92) respectively. The overall reliability coefficients for importance and performance column are 0.88, 0.91 respectively. Furthermore, the data collected was analyzed using Mean and Improvement Need Index (INI) to answer the research questions while Correlated t-test was used to test the hypotheses at 0.05 level of significance.

Capacity building needs were determined:

1. The mean (Xn) of the important category was determined for each item.
2. The mean (Xp) of the performance category was determined for each item.
3. The performance gap (PG) was determined by finding the differences between the values of the two means. That is, Xn –Xp= PG.

RESULT

Research Questions and Analyses

The results of the data analysis are shown below:

The following questionnaire items were developed to answer research question 1.

Research Questions 1: *What are the capacity building needs of building construction lecturers in sub-structure?*

Table 1 Capacity Building Needs of Building Construction Lecturers in Sub-structure

N=131

S/N	Item Statement	$\bar{X}_I$	$\bar{x}_p$	$\bar{X}_I$-$\bar{X}_p$	Rmk
1	Design standard sub-structure	4.07	3.00	1.07	N
2	Test soil texture for building	4.07	3.96	0.11	N
3	Calculate sub-structural load	4.07	3.74	0.33	N
4	Identify types of sub-structure	2.39	3.78	-1.39	NN
5	Identify the type of sub-soil for each foundation	2.39	3.50	-1.11	NN
6	Determine super-imposed load on sub-structure	3.81	3.55	0.26	N
7	Identify compressive load on sub-structure	3.68	3.74	-0.06	NN
8	Calculate load proportional to a sub-structure	3.68	3.68	0.00	N
9	Determine the ratio mix of concrete for sub-structure	3.68	3.95	-0.27	2
10	Determine the load bearing capacity of soil for sub-structure	3.68	4.02	-0.34	NN
11	Measure soil texture	3.77	3.63	0.14	N
12	Identify skills in setting out a sub-structure	3.90	3.91	-0.01	NN
13	Identify the weight of columns that a sub-structure can carry	3.90	3.70	0.20	N
	Cluster Mean	**3.62**	**3.70**	**-0.08**	**NN**

The result in Table 1 showed the mean and performance gap of respondents on the capacity building needs of building construction lecturers in sub-structure. The result showed that items 1, 2, 3, 6, 8, 11 and 13 had performance of 1.07, 0.11, 0.33, 0.26, 0.00, 0.14 and 0.20 respectively. These performance gaps were positive which means capacity building need of building construction lecturers in sub-structure was needed on those items because the level at which the lecturers performed the skills was lower than the level at which they were needed. However, items 4, 5, 7, 9, 10 and 12 have performance gap of -1.39, -1.11, -0.06, -0.27, -0.34 and -0.01 respectively. These performance gaps were negative meaning that capacity building need of building construction lecturers in sub-structure was not needed for those item because the level at which the lecturers performed the skills was higher than the level at which they were needed. The cluster performance gap of -0.08 also showed that capacity building need of building construction lecturers in sub-structure was not needed because the level at which the lecturers performed the skill was equal to the level at which the skill is needed.

The following questionnaire items were structured to answer the second research question which says:

Research Questions 2: *What are the capacity building needs of building construction lecturers in flooring?*

Table 2 Capacity Building Needs of Building Construction Lecturers in Flooring

N=131

S/N	Item Statement	$\bar{X}_I$	$\bar{x}_p$	$\bar{X}_I$-$\bar{X}_p$	Rmk
1	Determine the floor settlement	2.38	3.82	-1.44	NN
2	Determine the proper floor design	3.87	3.70	0.17	N
3	Determine the mix ratio of sandcrete for floor	3.98	2.45	1.53	N
4	Determine the bearing capacity of floor	3.79	3.78	0.01	N
5	Determine the mix ratio of concrete for floor	3.91	3.89	0.02	N
6	Determine the proper compatibility of floor screed	3.82	3.89	-0.07	NN
7	Determine the proper surface finishing of the floor	3.56	3.60	-0.04	NN
8	Use wood in floor finishing	2.96	3.17	-0.21	NN
9	Construct timber floor	3.05	3.12	-0.07	NN
10	Determine the use of reinforcement on upper floor	2.45	3.66	-1.21	NN
11	Proper application of dam-proof course	3.12	3.81	-0.69	NN
12	Determine techniques to be used in the construction of any of the classified types of floor	3.72	2.48	1.24	N
13	Skill on the fixing of floor tiles	3.61	3.61	0.00	NN
14	Determine the weight of floor	3.62	3.60	0.02	N
15	Determine the use of reinforcement on grand floor	3.60	3.57	0.03	N
16	Determine the suitable dam-proof course materials	3.60	3.77	-0.17	NN
	Cluster Mean	**3.44**	**3.49**	**-0.05**	**NN**

The result in table 2 showed the mean and performance gap of respondents on the capacity building needs of building construction lecturers in flooring. It revealed that items 2-5, and 12-15 had performance of 0.17, 1.53, 0.01, 0.02, 1.24, 0.00, 0.02 and 0.03 respectively. These performance gaps were positive which means capacity building was needed on those items because the level at which the lecturers performed the skills were lower than the level at which they were needed. However, items 1, 6-10 and 16 have performance gap of -1.44, -0.07, -0.04, -0.21, -0.07, -1.21 and -0.69 respectively. These performance gaps were negative indicating that capacity building is not needed for those item because the level at which the lectures performed the skills were higher than the level at which they were needed. The cluster performance gap value of -0.05 showed that the capacity building needs of building construction lecturers in flooring was not needed because the level at which the lecturers perform the skill was higher than the level at which the skill was needed.

The following questionnaire items were structured to answer the third research question which says:
Research Questions 3: *What are the capacity building needs of building construction lecturers in walling?*
The data for answering research question 1 were presented in table 3 below:
Table 3 Capacity Building Needs of Building Construction Lecturers in Walling

N=131

S/N	Item Statement	$\bar{X}_I$	$\bar{x}_p$	$\bar{X}_I$-$\bar{X}_p$	Rmk
1	Identify the weight of beams that the wall can carry	4.03	4.00	0.03	N
2	Determine the strength of the wall	3.93	2.38	1.55	N
3	Determine the height of wall according to standard	3.81	3.75	0.06	N
4	Determine the proper bonding of wall	3.92	3.96	-0.04	NN
5	Identify the proper ratio for moulding blocks/bricks	2.45	3.87	-1.42	NN
6	Determine the mix ratio for concrete blocks and bricks	3.86	3.86	0.00	NN
7	Determine proper alignment of cavity wall	2.89	3.59	-0.70	N
8	Determine the capillary action on a wall	3.43	3.40	0.03	N
9	Determine soil impurity	3.49	3.43	0.06	N
10	Determine the strength of wall that retains water	3.63	3.65	-0.02	NN
11	Determine skill for preparing scaffoldings in building site	3.74	2.38	1.36	N
12	Determine skill on dismantling scaffoldings in building site	3.58	3.54	0.04	N
13	Determine slenderness ratio of wall	3.45	3.46	-0.01	NN
14	Determine different types of bonds	2.42	3.58	-1.16	NN
15	Determine different materials for cavity wall construction	3.63	3.58	0.05	N
16	Remove efflorescence on walls	3.42	2.60	0.82	N
17	Determine walling materials that can cause efflorescence	3.64	3.58	0.06	N
18	Prevent wall cracks	3.86	3.87	-0.01	NN
19	Determine load and non-load bearing walls	3.92	3.80	0.12	N
20	Calculate the U-value of walling materials	3.59	2.38	1.21	N
21	Determine the proper surface finishing of walls	3.70	3.70	0.00	NN
	Cluster Mean	**3.54**	**3.45**	**0.09**	**N**

The result in table 3 showed the mean and performance gap of respondents on the capacity building needs of building construction lecturers in walling. It showed that items 1-3, 8, 9, 11, 12, 15-17, 19-20 had performance of 0.03, 1.55, 0.06, 0.03, 0.06, 1.36, 0.04, 0.05, 0.82, 0.06, 0.12, and 1.21 respectively. Since the performance gaps were positive it means capacity building needs of building construction lecturers in walling was needed on those items because the level at which the lecturers performed the skills were lower than the level at which they were needed. However, items 4,5,6,7,10,13,14, 18 and 21 have performance gap of -0.04, -1.42, 0.00, -0.70, -0.02, -0.01, -1.16, -0.01 and 0.00 respectively. These performance gaps were negative and zero indicating that capacity building needs of building construction lecturers was not needed for those item because the level at which the lecturers perform the skills were higher than the level at which they are needed. The cluster performance gap value of 0.09 showed that the capacity building needs of building construction lecturers in walling was needed because the level at which the lecturers performed the skill was lower than the level at which the skill was needed.

The following questionnaire items were structured to answer the second research question which says:
Research Questions 4: *What are the capacity building needs of building construction lecturers in roofing?*

Table 4 Capacity Building Needs of Building Construction Lecturers in Roofing

N=131

S/N	Item Statement	$\bar{X}_I$	$\bar{x}_p$	$\bar{X}_I$-$\bar{X}_p$	Rmks
1.	Design roof trusses	4.11	3.93	0.18	N
2.	Identify proper nails and roofing sheets	3.82	3.75	0.07	N
3.	Determine the use of asbestos roof	3.51	3.53	-0.02	NN
4.	Determine proper use of iron bars for construction of roofing	3.64	3.67	-0.03	NN
5.	Determine the use of asphalt for roof construction	3.34	2.43	0.91	N
6.	Determine the type of roof for a particular building	4.01	3.92	0.09	N
7.	Determine the proper laying of roof sheet	3.87	3.77	0.10	N
8.	Determine the height of a roof	2.44	3.61	-1.17	NN
9.	Identify the quality of roofing sheet	3.87	3.74	0.13	N
10.	Construction of different kinds of roof	3.89	2.63	1.26	N
11.	Determine skill in making form works for concrete structures at construction site	3.79	3.68	0.11	N
12.	Install different types of roofing tiles	3.59	3.31	0.28	N
	Cluster Mean	**3.66**	**3.49**	**0.17**	**N**

The result in table 4 showed the mean and performance gap of respondents on the capacity building needs of building construction lecturers in roofing. It showed that items 1, 2, 5-7, and 9-12 had performance of 0.18, 0.07, 0.91, 0.09, 0.10, 0.13, 1.26, 0.11 and 0.28 respectively. Since the performance gaps were positive, it means capacity building needs of building construction lecturers in roofing was needed on those items because the level at which the lecturers perform the skills were lower than the level at which they were needed. However, items 3, 4 and 8 have performance gap of -0.02, -0.03 and -1.17 respectively. These performance gaps were negative indicating that capacity building needs of building construction lecturers in roofing was not needed for those item because the level at which the lectures perform the skills were higher than the level at which they were needed. The cluster performance gap value of 0.17 showed that the capacity building needs of building construction lecturers in roofing is needed because the level at which the lecturers perform the skill is lower than the level at which the skill is needed.

The following questionnaire items were structured to answer the third research question which says:
Research Questions 5: *What are the capacity building needs of building construction lecturers in columns and beams?*

Table 5 Capacity Building Needs of Building Construction lecturers in columns and beams

N=131

S/N	Item Statement	$\bar{X}_I$	$\bar{x}_p$	$\bar{X}_I$-$\bar{X}_p$	Rmks
1	Determine the strength of columns and beams	4.28	4.10	0.18	N
2	Determine the load bearing capacity of columns and beams	2.38	3.87	-1.49	NN
3	Proper mixture of mass concrete	4.18	2.40	1.78	N
4	Proper compatibility for columns and beams	3.86	3.73	0.13	N
5	Proper reinforcement in columns and beams	3.93	3.83	0.10	N
6	Determine the tensile strength, shear forces of columns and beams	4.06	3.89	0.17	N
7	Determine the number of columns in a building	3.87	3.70	0.17	N
8	Determine the size and thickness of reinforcement used	2.49	3.90	-1.41	NN
9	Determine the skill to prevent crack in columns and beams	3.86	3.71	0.15	N
10	Determine the skill in making formworks for concrete structure at construction site.	3.97	3.92	0.05	N
11	Identify different materials that are weak in tensile compressive and shear strength	3.73	3.80	-0.07	NN
12	Identify slenderness ratio of column	2.86	2.40	0.46	N
13	Calculate tensile ,compressive and shear force on beams and columns	3.92	2.83	1.09	N
14	Determine areas where tensile, compressive and shear forces act on beams and columns	3.90	3.81	0.09	N
	Cluster Mean	**3.66**	**3.56**	**0.10**	**N**

The result in table 5 showed the mean and performance gap of respondents on the capacity building needs of building construction lecturers in columns and beams. It showed that items 1, 3-7, 9, 10 and 12-14 had performance of 0.18, 1.78, 0.13, 0.10, 0.17, 0.17, 0.15, 0.05, 0.46, 1.09 and 0.09 respectively. Since the performance gaps were positive it means capacity building needs of building construction lecturers in columns and beams was needed on those items because the level at which the lecturers performed the skills were lower than the level at which they were needed. However, items 2, 8 and 11 have performance gap of -1.49, -1.41 and -0.07 respectively. These performance gaps were negative indicating that capacity building needs of building construction lecturers in columns and beans was not needed for those item because the level at which the lectures performed the skills were higher than the level at which they are needed. The cluster performance gap value of 0.10 showed that the capacity building needs of building construction lecturers in columns and beams was needed because the level at which the lecturers perform the skill is lower than the level at which the skill was needed.

Hypotheses 1

There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in sub-structure

Table 6 T-test Analysis of the Mean Responses of Building Construction Lecturers and Building Supervisors on Capacity Building Needs of Lecturers in Sub-Structure

S/N	Item Statement	Status	$\bar{x}$	SD	t-cal	Df	Sig	Dec
1.	Design standard sub-structure	Lecturers	4.12	1.07	0.81	129	0.41	NS
		Supervisors	3.93	1.10				
2.	Test soil texture for building	Lecturers	3.91	1.05	-1.92	129	0.06	NS
		Supervisors	4.33	0.83				
3.	Calculate sub-structural load	Lecturers	3.88	1.14	-0.06	129	0.95	NS
		Supervisors	3.89	0.97				
4.	Identify types of sub-structure	Lecturers	2.40	1.56	0.10	129	0.92	NS
		Supervisors	2.37	1.49				
5.	Identify the type of sub-soil for	Lecturers	3.88	1.07	-1.53	129	0.12	NS
	different type of foundation	Supervisors	4.22	0.80				
6.	Determine super-imposed load on	Lecturers	3.76	1.07	-1.24	129	0.22	NS
	sub-structure	Supervisors	4.04	0.85				
7.	Identify compressive load on sub-	Lecturers	3.61	1.16	-1.57	129	0.11	NS
	structure	Supervisors	4.00	1.14				
8.	Calculate load proportional to a	Lecturers	3.84	1.07	1.18	129	0.24	NS
	sub-structure	Supervisors	3.56	1.21				
9.	Determine the ratio mix of	Lecturers	2.40	0.58	-0.93	129	0.35	NS
	concrete for sub-structure	Supervisors	2.52	0.50				
10.	Determine the load bearing	Lecturers	3.87	1.14	-1.33	129	0.86	NS
	capacity of soil for sub-structure	Supervisors	4.19	1.00				
11.	Measure soil texture	Lecturers	3.70	1.06	-1.51	129	0.13	NS
		Supervisors	4.04	0.85				
12.	Identify skills in setting out a sub-	Lecturers	3.90	1.01	-0.09	129	0.92	NS
	structure	Supervisors	3.93	1.20				
13.	Identify the weight of columns that	Lecturers	3.80	1.16	-2.07	129	0.04	S
	a sub-structure can carry	Supervisors	4.30	0.91				
	Cluster t	**Lecturers**	**3.62**	**0.55**	**-1.44**	**129**	**0.15**	**NS**
		Supervisors	**3.79**	**0.54**				

The result in table 6 showed the t-test analysis of the significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in sub-structure. Results showed that item 1 - 12 have significant values above the 0.05 set as level of significance for testing the null hypothesis. Since the significant values were greater than 0.05, it means that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of sub-structure on those items. However, result showed that there was a significance difference on item 13 with significant value below 0.05. The cluster t-value of -1.44 with a degree of freedom of 129 and a probability value of 0.15 showed that the result was not significant. This is because the probability value was greater than 0.05. This means that the null hypothesis which stated that there was no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in sub-structure was not rejected. Inference drawn therefore was that building lecturers and building supervisors do not differ in their opinion on capacity building needs of lecturers in the area of sub-structure.

Hypotheses 2

There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of flooring

Table 7 T-test Analysis of the Mean Responses of Building Construction Lecturers and Building Supervisors on Capacity Building Needs of Lecturers in flooring

S/N	Item Statement	Status	$\bar{x}$	SD	t-cal	Df	Sig	Dec
1	Determine the floor settlement	Lecturers	2.38	0.61	-0.53	129	0.59	NS
		Supervisors	2.44	0.57				
2	Determine the proper floor design	Lecturers	3.88	1.12	-0.06	129	0.95	NS
		Supervisors	3.89	0.89				
3	Determine the ratio mix sandcrete for floor	Lecturers	3.88	1.08	-2.15	129	0.03	S
		Supervisors	4.37	0.88				
4	Determine the bearing capacity of floor	Lecturers	3.75	1.16	-0.84	129	0.40	NS
		Supervisors	3.96	1.22				
5	Determine the ratio of concrete mix for floor	Lecturers	3.81	1.08	-2.38	129	0.02	S
		Supervisors	4.33	0.67				
6	Determine the proper compatibility of floor screed	Lecturers	3.79	0.98	-0.80	129	0.42	NS
		Supervisors	3.96	1.09				
7	Determine the proper surface finishing of the floor	Lecturers	3.47	1.13	-1.88	129	0.06	NS
		Supervisors	3.93	1.07				
8	Use wood in floor finishing	Lecturers	2.92	1.15	-0.74	129	0.45	NS
		Supervisors	3.11	1.21				
9	Construct timber floor	Lecturers	2.96	1.24	-1.67	129	0.09	NS
		Supervisors	3.41	1.18				
10	Determine the use of reinforcement on upper floor	Lecturers	2.44	0.55	-0.65	129	0.52	NS
		Supervisors	2.52	0.50				
11	Proper application of dam-proof course	Lecturers	3.07	1.43	-0.97	129	0.33	NS
		Supervisors	3.37	1.52				
12	Determine techniques used in the construction of any of the classified types of floor	Lecturers	3.70	1.05	-0.49	129	0.62	NS
		Supervisors	3.81	1.03				
13	Skill on the fixing of floor tiles	Lecturers	3.61	1.01	-0.27	129	0.78	NS
		Supervisors	3.67	1.03				
14	Determine the weight of floor	Lecturers	3.56	1.07	-1.47	129	0.14	NS
		Supervisors	3.89	0.89				
15	Determine the use of reinforcement on grand floor	Lecturers	3.60	1.17	-0.13	129	0.89	NS
		Supervisors	3.63	1.18				
16	Determine the suitable dam-proof course materials	Lecturers	3.88	1.03	-0.18	129	0.85	NS
		Supervisors	3.93	1.10				
	Cluster total	**Lecturers**	3.41	0.51	**-1.95**	**129**	**0.06**	**NS**
		Supervisors	3.63	0.54				

The result in table 7 showed the t-test analysis of the significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of flooring. It showed that all the items except items 3 and 5 have significant values above 0.05 set as level of significance for testing the null hypothesis. Since the significant values are greater than 0.05, it means that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of flooring on those items. However, the result showed that there was a significant difference on items 3 and 5 with significant values below 0.05. The cluster t-value of -1.95 with a degree of freedom of 129 and a probability value of 0.06 shows that the result is not significant. This is because the probability value is greater than 0.05. This means that the null hypothesis which stated that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of flooring was not rejected. Inference drawn therefore was that building lecturers and building supervisors do not differ in their opinion on capacity building needs of lecturers in the area of flooring.

Hypotheses 3

There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in walling

Table 8 The t-test Analysis of the Mean Responses of Building Construction Lecturers and Building Supervisors on the Capacity Building of lecturers in Walling

S/N	Item Statement	Status	$\bar{x}$	SD	t-cal	Df	Sig	Dec
1	Identify the weight of beams that the wall carry	Lecturers	4.03	1.16	-0.18	129	0.85	NS
		Supervisors	4.07	1.03				
2	Determine the strength of the wall	Lecturers	3.79	1.06	-3.10	129	0.00	S
		Supervisors	4.48	0.89				
3	Determine the height of wall according to the standard	Lecturers	3.73	1.12	-1.81	129	0.07	NS
		Supervisors	4.15	0.81				
4	Determine the proper bonding of the wall	Lecturers	3.87	0.94	-1.33	129	0.18	NS
		Supervisors	4.15	1.09				
5	Identify the proper ratio for moulding blocks/bricks	Lecturers	2.46	0.62	0.41	129	0.68	NS
		Supervisors	2.41	0.57				
6	Determine the mix ratio for concrete blocks and bricks	Lecturers	3.78	1.20	-1.64	129	0.10	NS
		Supervisors	4.19	0.87				
7	Determine proper alignment of cavity wall	Lecturers	2.88	1.35	-0.14	129	0.89	NS
		Supervisors	2.93	1.43				
8	Determine the capillary action on a wall	Lecturers	3.44	1.02	0.16	129	0.87	NS
		Supervisors	3.41	1.08				
9	Determine soil impurity	Lecturers	3.43	1.03	-1.33	129	0.18	NS
		Supervisors	3.74	1.19				
10	Determine the strength of wall that retains water	Lecturers	3.60	1.15	-0.72	129	0.47	NS
		Supervisors	3.78	1.21				
11	Determine skill for preparing scaffoldings in building site	Lecturers	3.75	1.08	0.04	129	0.96	NS
		Supervisors	3.74	1.13				
12	Determine skill on dismantling scaffoldings in building site	Lecturers	3.55	1.09	-0.66	129	0.51	NS
		Supervisors	3.70	1.06				
13	Determine slenderness ratio of wall	Lecturers	3.44	1.12	-0.16	129	0.87	NS
		Supervisors	3.48	1.15				
14	Determine different types of bonds	Lecturers	2.43	0.58	0.20	129	0.84	NS
		Supervisors	2.41	0.57				
15	Determine different materials for cavity wall construction	Lecturers	3.64	1.09	0.21	129	0.83	NS
		Supervisors	3.59	1.27				
16	Remove efflorescence on walls	Lecturers	3.57	0.85	3.33	129	0.00	S
		Supervisors	2.89	1.21				
17	Determine walling materials that can cause efflorescence	Lecturers	3.65	1.01	0.10	129	0.92	NS
		Supervisors	3.63	1.30				
18	Prevent wall cracks	Lecturers	3.85	0.99	-0.34	129	0.73	NS
		Supervisors	3.93	1.35				
19	Determine load and non-load bearing walls	Lecturers	3.88	1.02	-0.80	129	0.42	NS
		Supervisors	4.07	1.32				
20	Calculate the U-value of walling materials	Lecturers	3.59	1.05	-0.18	129	0.85	NS
		Supervisors	3.63	1.11				
21	Determine the proper surface finishing of the wall	Lecturers	3.73	1.07	0.57	129	0.57	NS
		Supervisors	3.59	1.30				
	Cluster total	**Lecturers**	**3.52**	**0.54**	**-0.77**	**129**	**0.44**	**NS**
		Supervisors	**3.61**	**0.48**				

Result in table 8 showed the t-test analysis of the significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of walling. It revealed that all the items except items 2 and 16 have significant values above 0.05 set as level of significance for testing the null hypothesis. Since the significant values were greater than 0.05, it means that there was no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of walling on those items. However, result showed that there was a significant difference on items 2 and 16 with significant values below 0.05. The cluster t-value of -0.77 with a degree of freedom of 129 and a probability value of 0.44 showed that the result was not significant. This is because the probability value is greater than 0.05. This means that the null hypothesis which stated that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of walling was not rejected. Inference drawn therefore was that building lecturers and building supervisors do not differ in their opinion on capacity building needs of lecturers in the area of walling.

Hypotheses 2

There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of roofing.

Table 9 t-test Analysis of the Mean Responses of Building Construction Lecturers and Building Supervisors on Capacity Building Needs of Lecturers in Roofing

S/N	Item Statement	Status	$\bar{x}$	SD	t-cal	Df	Sig	Dec
1	Design the roof truss	Lecturers Supervisors	4.16 3.93	1.06 1.10	1.03	129	0.31	NS
2	Identify proper nails and roofing sheet	Lecturers Supervisors	3.74 4.15	1.08 0.94	-1.77	129	0.08	NS
3	Determine the use of asbestos roof	Lecturers Supervisors	3.43 3.85	1.10 0.86	-1.83	129	0.07	NS
4	Determine proper use of iron bars for construction of roofing	Lecturers Supervisors	3.57 3.96	1.14 1.12	-1.60	129	0.11	NS
5	Determine the use of asphalt for roof construction	Lecturers Supervisors	3.24 3.74	1.25 1.13	-1.87	129	0.06	NS
6	Determine the type of roof for a particular building	Lecturers Supervisors	3.89 4.48	0.98 0.84	-2.84	129	0.00	S
7	Determine the proper laying of roof sheet	Lecturers Supervisors	3.77 4.30	1.04 0.91	-2.39	129	0.02	S
8	Determine the height of a roof	Lecturers Supervisors	2.40 2.59	0.69 0.69	-1.26	129	0.21	NS
9	Identify the quality of roofing sheet	Lecturers Supervisors	3.78 4.22	1.11 0.80	-1.94	129	0.06	NS
10	Construction of different kinds of roof	Lecturers Supervisors	3.88 3.96	0.95 1.19	-0.40	129	0.68	NS
11	Determine skill on making form works for concrete structures at construction site	Lecturers Supervisors	3.76 3.93	1.11 1.03	-0.69	129	0.48	NS
12	Install different types of roofing tiles	Lecturers Supervisors	3.25 3.56	1.08 1.01	-1.32	129	0.18	NS
	Cluster t	**Lecturers** **Supervisors**	**3.57** **3.88**	**0.54** **0.56**	**-2.67**	**129**	**0.01**	**S**

The result in table 9 showed the t-test analysis of the significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of roofing. It showed that all the items except items 6 and 7 had significant values above 0.05 set as level of significance for testing the null hypothesis. Since the significant values were greater than 0.05, it means that there was no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of roofing on those items. However, the result showed that there is a significance difference on items 6 and 7 which have significant values below 0.05. The cluster t-value of -2.67 with a degree of freedom of 129 and a probability value of 0.01 showed that the result was significant. This is because the probability value was less than 0.05. This means that the null hypothesis which stated that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of roofing was rejected. Inference drawn therefore was that building lecturers and building supervisors differ in their opinion on capacity building needs of lecturers in the area of roofing.

Hypotheses 3

There is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in columns and beams?

Table 10 t-test Analysis of the Mean Responses of Building Construction Lecturers and Building Supervisors on Capacity Building Needs of Lecturers in Columns and Beams

S/N	Item Statement	Status	$\bar{x}$	SD	t-cal	Df	Sig	Dec
1	Determine the strength of column and beam	Lecturers Supervisors	4.27 4.33	0.92 1.00	-0.32	129	0.75	NS
2	Determine the load bearing capacity of column and beam	Lecturers Supervisors	2.37 2.44	0.62 0.69	-0.57	129	0.56	NS
3	Proper mixture of mass concrete	Lecturers Supervisors	4.13 4.37	1.04 0.88	-107	129	0.28	NS
4	Proper compatibility for columns and beams	Lecturers Supervisors	3.80 4.11	1.01 0.84	-1.47	129	0.14	NS
5	Proper reinforcement in column and beams	Lecturers Supervisors	3.84 4.30	1.13 0.99	-1.92	129	0.06	NS
6	Determine the tensile strength, shear forces of columns and beams	Lecturers Supervisors	3.95 4.52	1.02 1.01	-2.56	129	0.01	S
7	Determine the number of columns in a building	Lecturers Supervisors	3.76 4.30	1.07 0.95	-2.36	129	0.02	S
8	Determine the size and thickness of reinforcement used	Lecturers Supervisors	2.43 2.74	0.58 0.94	-2.11	129	0.04	S
9	Determine the skill to prevent crack in columns and beams	Lecturers Supervisors	3.83 4.00	1.17 1.07	-0.69	129	0.49	NS
10	Determine the skill on making form works for concrete structure at construction site.	Lecturers Supervisors	3.89 4.30	1.01 0.86	-1.88	129	0.06	NS
11	Identify different materials that are weak in tensile compressive shear strength	Lecturers Supervisors	3.72 3.78	1.08 1.20	-0.23	129	0.82	NS
12	Identify slenderness ratio of column	Lecturers Supervisors	2.79 3.15	1.37 1.48	-1.19	129	0.23	NS
13	Calculate tensile compressive Shear force on beams and columns	Lecturers Supervisors	3.84 4.26	1.05 0.90	-1.91	129	0.06	NS
14	Determine areas where tensile, compressive, shear forces act on beams and columns	Lecturers Supervisors	3.76 4.04	1.06 0.98	-1.22	129	0.22	NS
	Cluster t	**Lecturers** **Supervisors**	**3.59** **3.90**	**0.52** **0.50**	**-2.71**	**129**	**0.08**	**NS**

Result in table 10 showed the t-test analysis of the significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of columns and beams. The result showed that all the items except items 6, 7 and 8 have significant values above 0.05 set as level of significance for testing the null hypothesis. Since the significant values are greater than 0.05, it means that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of columns and beans on those items. However, result showed that there is a significance difference on items 6, 7 and 8 with significant values below 0.05. The cluster t-value of -2.71 with a degree of freedom of 129 and a probability value of 0.08 showed that the result was not significant. This is because the probability value was greater than 0.05. This means that the null hypothesis which stated that there is no significant difference in the mean responses of building construction lecturers and building supervisors on capacity building needs of lecturers in the area of columns and beams was not rejected. Inference drawn therefore is that building lecturers and building supervisors do not differ in their opinion on capacity building needs of lecturers in the area of columns and beams.

DISCUSSION OF FINDINGS

The findings of the study were discussed in relation to the research questions and the null hypotheses that guided the study. The finding of the study showed that the following capacity building needs of lecturers in areas of sub-structure are needed, these include; design to standard sub-structure, test soil texture for building, calculate sub-structural load, determine super-imposed load on sub-structure, calculate load proportionally on a sub-structure, use instrument to measure soil texture and identifying the weight of columns that a sub-structure can carry. The substructure or foundation is the lower portion of the building, usually, located below ground level, which transmits the load of the super-structure to the sub-soil or rock. Foundations are therefore that part of the structure which is in direct contact with the ground to which the loads are transmitted. The findings of this study is in line with Ezeji (1984) who found that the ability of a building to remain firm for several years on the ground upon which it is built depends on the strength of its foundation. Gupta, (2005) also states that in order to ensure the stability of any foundation, it is necessary for the designer to know firstly, something of the distribution and intensity of pressure between the foundations and the soil and of the intensity of pressure and shearing stresses at various parts within the soil, secondly, to know something of the mechanism of failure of the soil when overloaded. These mean that the lecturers need these capacity building needs in areas of sub-structure.

The major purpose of floors is to support the inmates of a building together with their belongings. In buildings that have one storey only, it is possible to support the floor upon the ground, but if a basement is required or if the building has more than one storey, some other means must be found for supporting the floors. According to Ezeji (1984) floors may be classified as basement floors, ground floors, and upper floors. The findings of the study therefore showed that the following capacity building needs of lecturers are needed. These include the following; determine the proper floor design, determine the ratio mix sandcrete for floor, determine the bearing capacity of floor, determine the ratio of concrete mix for floor, determine techniques used in the construction of any of the classified types of floor, determine the weight of floor and determine the use of reinforcement on grand floor. The findings of the study agree with Naeim (1999) that the construction of a solid floor needs to satisfy some number of functional requirements, among which include the ability of the builder to mix sandcrete for floor, determine the bearing capacity of floor, determine the ratio of concrete mix for floors, among others. These mean the capacity building needs of lecturers are needed in those areas of flooring.

Wall is one of the most essential components of a building. The primary function of a wall is to enclose or divide space of the building to make it more functional and useful. Walls provide privacy, afford security and give protection against heat, cold, sun and rain. Walls provide support to floors and roofs. Walls should therefore be so designed as to have provision of adequate strength and stability, weather resistance, durability, fire resistance, thermal insulation and sound insulation. The findings of the study therefore showed that the capacity building needs of lecturers in areas of walling are needed in certain areas, these include the following; ability to identify the weight of beams that the wall carry, the strength of the wall, determine the height of wall according to the standard, determine proper alignment of cavity wall, determine the capillary action on a wall, determine soil impurity, determine skill for preparing scaffoldings in building site, determine skill on dismantling scaffoldings in building site, determine different materials for cavity wall construction among others. The finding is in agreement with Harcis and Maccter (2005) who opined that, walls to building can be constructed in various ways using a variety of skills and materials. In order to determine the different structural problems caused by walls, it is necessary to know the functions of walls in various locations. Harcis and Maccter (2005) also affirm that walls must be of sufficient thickness to keep the stresses within the limits to safe compressive stresses of the materials in the wall for example, bricks and mortar. Tensile stresses may be induced by unequal loading on the wall and the bonding and joints of the bricks or blocks must be able to withstand them. The thickness –to-height ratio must be sufficient to prevent bucking and there must be adequate lateral support to resist overturning. The materials in the wall must be durable, free from salts, atmospheric pollution and other adverse conditions.

A roof may be defined as the uppermost part of the building provided as a structural covering, to protect the building from weather (i.e. from rain, sun, wind). The findings of the study showed that the following capacity building needs of lecturers in areas of roofing are needed, these include; designing roof trusses, identify proper nails and roofing sheets, determine the use of asphalt for roof construction, determine the type of roof for a particular building, determine the proper laying of roofing sheet, identify the quality of roofing sheet, construction of different kinds of roof, determine skill on making formworks for concrete structures at construction sites and install different types of roofing tiles. The findings of the study is in line with that of Punmia (1993), that a roof should be constructed in the same way as an upper floor, though the shape of its upper surface may be different but basically, a roof should consist of structural elements which support roof coverage. The structural elements may be trusses, portals, beams slabs (with or without beams), shells or domes. The roof coverings may be Asbestos cement sheets, (A.C. sheets), Galvanized corrugated iron sheets (G.I. sheets) wooden shingle, tiles, slates, or slab itself. Materials that cover flat roofs should allow the water to run off freely from a very slight inclination (Naeim, 1999).

A column is a building component or element supporting a load by axial compression (Edward, 2001). Ronaldo (2003) opined that column is one of the most familiar architectural. Each of the Engineers, Architects and the building contractors can picture this very important space definer in their minds and eye. In every multi-story building under construction that is built to Nigeria Institute of Builders (NIOB) standard specification will always have some numbers of columns depending on some number of factors and features. Columns are vertical load-bearing elements which are normally loaded in compression. Columns have been made out of different materials that have a minimal compressive strength. The findings of the study therefore showed that on columns and beams, the following skills are needed: determine the skill to prevent crack in columns and beams, determine the skill on making formworks for concrete structure at construction site, identify slenderness ratio of columns, calculate tensile compressive and shear force on beams and columns and determine areas where tensile, compressive, and shear forces act on beams and columns. The capacity building needs of lecturers in building construction is therefore needed in those areas mentioned above.

CONCLUSION

Based on the findings of the study, the following conclusions were drawn: capacity building lecturers in building construction have a major role to play in inculcation of knowledge, technical skills and attitude to students. To achieve these, there is need to re-train technical teachers Lecturers, supervisors who are given the responsibility to teach students to acquire requisite skills in building construction before production to enhance their employability.

RECOMMENDATIONS

The following recommendations are made based on the findings of the study:

1. The Federal and State Government should ensure that, the necessary and relevant capacity building that are required with special reference to tools and machines are adequately provided to all Colleges of Education (Technical) and Polytechnics
2. Lecturers without teaching qualification of NCE or its equivalent be encouraged to undertake postgraduate diploma in Technical education (PGDTE)
3. Industries should be mandated to be involved in the supply of adequate facilities for learning in Colleges of Education (Technical)
4. This study indicated that the curriculum of building construction is relevant to the needs of college students and the society in which they live. In order to implement the curriculum effectively in institution, various instructional facilities and qualified Technical teachers should be employed to teach and perform administrative functions.

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