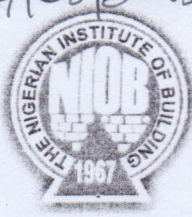
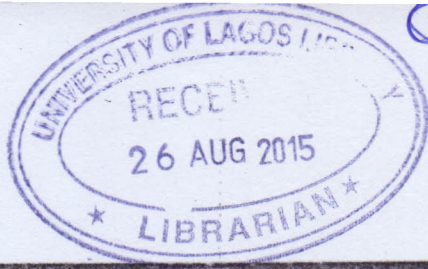


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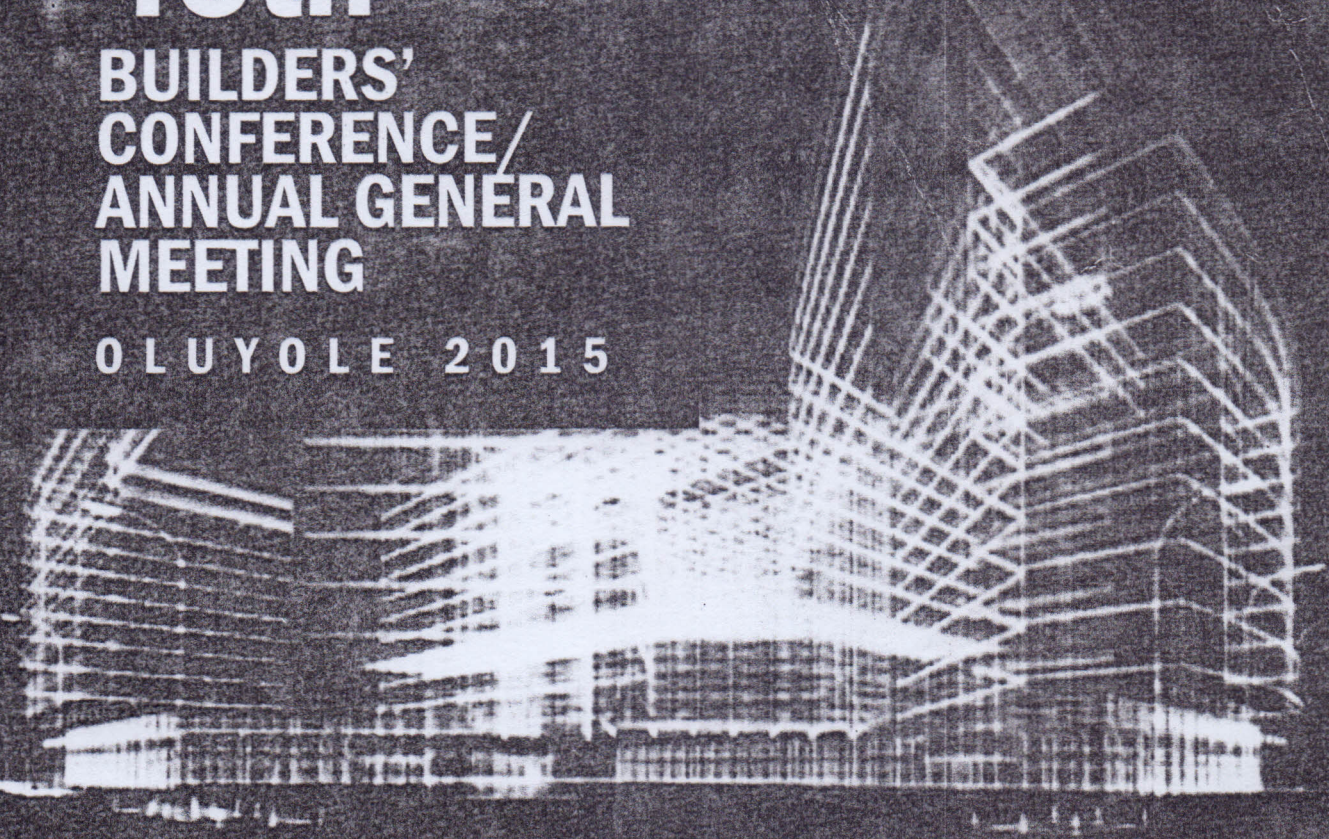


PROCEEDINGS OF THE

45th

**BUILDERS'
CONFERENCE/
ANNUAL GENERAL
MEETING**

OLUYOLE 2015



THEME

**Skills Development and Entrepreneurship
in the Construction Industry**

Venue: International Conference Centre,
University of Ibadan, Oyo State
Date: Monday, 3rd - Friday, 7th August, 2015
Time: 9.00am daily

BE WISE, BUILD RIGHT, ENGAGE A PROFESSIONAL BUILDER

SUB-THEME 2:

**SCOPE OF BUILDING AND
CONSTRUCTION SKILLS**

THE SCOPE OF CONSTRUCTION PROFESSIONALS' SKILLS.

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ABSTRACT

Skills are essential in the construction industry. Construction works are complex and labour-intensive. Construction professionals are saddled with the responsibility of managing these complex works and pharaonic-human resources. Thus, the professionals require specific skills to carry out these tasks. The study investigates the scope of construction professionals' skills in Nigeria. The objective is to establish the content of the skills expected of construction professionals. This is achieved by comparing the opinions of two groups of respondents, namely: the educators and industry practitioners in Lagos State. Questionnaires were administered to the educators via census method and to the industry practitioners via purposive sampling method. A sample size of 65 was used, while descriptive and inferential tools were used for analysis. The study reveals 21 skills that should form the scope of construction professionals' skills. The study therefore recommends that construction professionals should strive to develop themselves in these skills for optimal performance in the industry. The study is significant because these skills could serve as benchmarks for engaging professionals and to measure their performance.

KEYWORDS: skills, scope, educators, practitioners.

1.1. INTRODUCTION

Skills are inbuilt abilities for tasks' accomplishment. The outcomes of construction projects depend largely on the sort of skills employed and displayed by the construction professionals that manage the procurement processes. Consequently, some projects are unfinished or poorly finished with attendant implications, due to drought of skills by the construction professionals on such projects (Al Omani, 2008). Some of the implications include, but not limited to cost overrun, time overrun, project abandonments, poor quality, clients' dissatisfaction, users' dissatisfaction, failures and losses. In this regard,

Juras (2010) reveals that the effectiveness of construction teams' or organizations' leader relies solidly not only on their traits and styles, but also on their skills' content and development. Construction professionals' skill is linked with the performance of the industry, which can be benchmarked by projects' outcomes; and thus indicates that assessment of the skills of the professionals is crucial for viable organizations and industry. For instance, Jamshidi, Zeinahvazi, Aadal and Sabet (2012) state that hiring competent professionals in construction firms can promote the quantity and quality of products, as well as increase the possibility of successful achievement of strategic goals. This study therefore investigates the skills of construction professionals in Nigeria. The specific objective is to determine the scope of construction professionals' skills, via the opinions of the educators and industry practitioners in Nigeria. The study is significant because it will shed light on the content of construction professionals' skills in Nigeria, thereby improving skills and to enhance projects' outcomes.

1.2 HYPOTHESIS OF THE STUDY

H1: There is no significant difference between the educators and industry practitioners on the scope of construction professionals' skills in Nigeria.

1.3 OPERATIONAL DEFINITION OF TERMS

1. Educators: this term refers to senior lecturers and above in built environment departments of public polytechnics and universities.
2. Industry Practitioners: this term connotes construction professionals that are practicing in construction organizations.

1.4 LITERATURE REVIEW

The scope of skills required of construction professionals is diverse and enormous. Ogunsemi, Oyediran and Ekundayo (2008) submit that skills are among the core competences of construction professionals. Dada and Jagboro (2012) also shed light that skills are crucial for the continuity and relevance of any profession. To this, Park, Son and Kim (2012) submit that competitiveness, globalization and project complexity necessitate the need for improvement in construction professionals' skills. Their study suggests web-based training for construction professionals. Web-based training permits learning without physical contacts. Wall, Ahmed and Smit (2006) also earlier suggested e-learning for continuing professional development. Thus, Juras (2010) indicates the

importance of developing 18 skills by professionals to effectively perform leadership roles on projects and organizations. The 18 skills are categorized into technical, interpersonal and conceptual skills. Technical skills comprise tending to details; technical proficiency; ability to adhere to instructions and complete forms; efficacy of executing assigned tasks; and ability to understand assigned tasks. Interpersonal skills include ability to adjust own ideas to people; importance of understanding others; orientation to improving work environment and communication; orientation to understanding social relations; encouragement of team work and cooperation; and concern for the impact of one's own decisions on other people's lives. Conceptual skills are abstract thinking; ability to understand the 'big picture'; tendency to analyze complex organization problems; tendency to formulate growth strategies; tendency to engage in drafting of a mission statement; and tendency to think about organizational values and business philosophy. Juras (2010) opines that construction professionals are most developed in technical skills, followed by interpersonal and conceptual skills. Technical skills are required for lower and middle levels managerial tasks, conceptual skills are required for high level, while interpersonal skills are required for all levels. Similarly, **Al Omani (2008)** posit that essential skills for construction professionals comprise communication skills, organization and planning skills, budgeting skills, conflict management skills, negotiation and influencing skills, leadership skills and team-building and motivating skills. Khattak, (nd) advocates that communication skill is germane to succeeding professionally and also teach important life skills such as conflict resolution, decision making and team building. **Cohen (2002)** also ascertains that managers require negotiation skills. Negotiation involves people reaching acceptable resolutions on projects by working together. It connotes joint decision-making processes and a successful negotiation has taken place when the parties end up mutually committed to fulfilling the agreement they have reached. In this regard, Ogunsemi *et. al.* (2008) opine that the essential skills that often become relevant to construction project managers are leadership, communication, negotiating, influencing, team building, problem solving and decisiveness skills. Dada and Jagboro (2012) also indicate the important skills for quantity surveyors as computer literacy, building engineering, information technology, economics, measurement/quantification and knowledge of civil/heavy engineering works. Hence, the relevance of all these skills as part of those that are required of construction professionals in Nigeria is investigated in this study.

1.5 RESEARCH METHODS

The study was conducted using a cross-sectional survey design. The population of the study comprises educators and industry practitioners in Lagos State. Census method was

used in administering questionnaires to the educators, while purposive sampling technique was used for the industry practitioners. A total of 230 questionnaires were administered, 71 were filled and returned, resulting to a response rate of 31%. However, only 65 out of the 71 were found useful for the study, which form the sample size. The questionnaires sought the respondents' and organizations' demographic information; and examined 34 professionals' skills on a 5-point Likert scale (from strongly disagree (1) to strongly agree (5)). Mode, mean, standard deviation and analysis of variance (ANOVA) were used to analyze the data.

1.6 FINDINGS AND DISCUSSIONS

Respondents' Information.

The respondents' profession shows that 15 of them are of civil engineering profession, 14 each are of building and architecture, 13 are of quantity surveying, five of estate management, one is of electrical engineering and 3 of them did not indicate their professions. A total of 26 of the respondents have Post Graduate Degree (PGD), 12 have Bachelor of Science (B.Sc) degree, 10 each have Higher National Diploma (HND) degree and Doctorate Degree (PhD), two each have Ordinary National Diploma (OND) and Master of Science (M.Sc), just one has Master of Philosophy (M.Phil) and two did not indicate their qualifications.

Additionally, 22 of them have six to 10 years experience, 21 have above 20 years, eight have less than five years, seven have 11 to 15 years, five have 16 to 20 years and two did not indicate their experiences. Moreover, 21 of them have participated in one to 10 projects, 13 in 21 to 30 projects, 12 in 11 to 20 projects, 10 in more than 50 projects, four in 31 to 40 projects, one in 41 to 50 projects, four in 31 to 40 projects, one in 41 to 50 projects and four of them did not indicate their projects' involvement. Also, 13 apiece are members of the Nigerian Institute of Building (NIOB) and Nigeria Society of Engineers (NSE), 10 each are members of Nigerian Institute of Quantity Surveying (NIQS) and Nigerian Institute of Architects (NIA), six are members of Nigerian Institute of Estate Valuers (NIESV), one is a member of Nigerian Institute of Safety Professionals (NISP) and 12 of them did not indicate whether they are members of any professional body or not. The respondents' professional membership sheds light that 24 of them are corporate members of their professional bodies, 23 are graduate members, four each are associate and fellow members, two are below associate, while eight of them did not indicate their membership grades.

In conclusion, the position of the respondents is further analyzed and presented in Figure 1, because this study considers it as the most significant demographic characteristics,

since it is the basis of comparison among the two groups of respondents. The educators consist of five professors, three chief lecturers, one assistant professor and principal lecturer, and 12 senior lecturers. On the other hand, the position of the industry practitioners in their various organizations comprise one senior engineer, deputy director, technical officer, store officer, survey engineer and project manager, four managing directors, two chief architects and quality control supervisors, seven principal/chief technical officers and quantity surveyors, three engineers and five site managers. It can be inferred that the targeted respondents span across the three levels of management (i.e. top, middle and lower levels), hence they can be considered appropriate to supply the data required on the scope of skills of construction professionals.

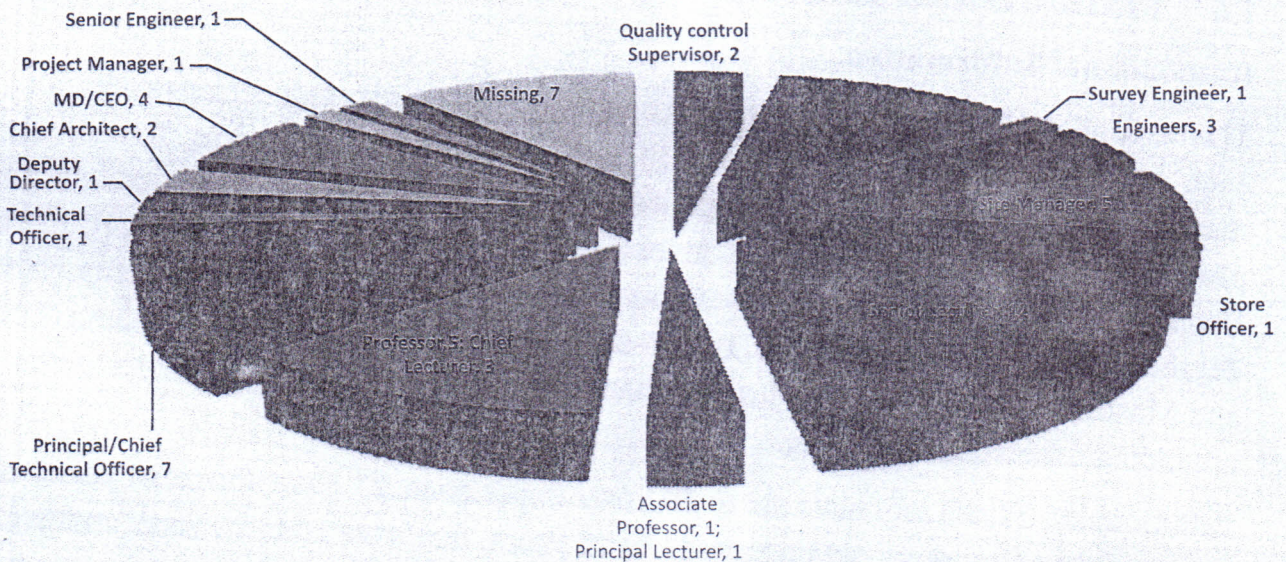


Figure 1: Respondents' Positions.

Scope of Construction Professionals' Skills.

Construction professionals were examined by the respondents on 34 skills as presented in Table 1. The criterion for selecting a skill as part of the scope of construction professionals is that its mode and mean from the educators and industry practitioners must not be less than 4 (i.e. "agree", on the 5-point Likert scale used). Thus, 21 skills were selected as the scope of construction professionals' skills. The 21 skills comprise:

- i. Budgeting and control.
- ii. Understanding of construction industry requirements.
- iii. Organization and planning.
- iv. Problem solving capability.
- v. Technical and professional expertise.

- vi. Leadership capability.
- vii. Ability to present ideas and negotiate.
- viii. Efficacy in understanding and executing assigned tasks.
- ix. People management.
- x. Multi-disciplinary team building and teamwork experience.
- xi. Flexibility and understanding others
- xii. Communication.
- xiii. Tendency to analyze complex organization problems.
- xiv. Financial and contractual management.
- xv. Understanding of construction procurement processes.
- xvi. Tendency to formulate growth strategies.
- xvii. Value management experience.
- xviii. Time management.
- xix. Tending to details.
- xx. Ability to adhere to instructions.
- xxi. Tendency to think about organizational values and business philosophy.

Although the 21 skills were unanimously determined by the educators and industry practitioners, they differ in their agreement on all the skills. For instance, budgeting and control, and understanding of construction industry requirements are the first two skills in the industry practitioners' opinion; while they are organization and planning, and understanding of construction procurement processes in the educators'. However, the least agreement is on tendency to think about organizational values and business philosophy in both the educators' and industry practitioners' opinions.

This finding agrees extensively with the opinion of Al Omani (2008) because six of the seven skills opined by Al Omani (2008) are part of those selected in this study, namely: communication skill, organization and planning skill, budgeting skill, negotiating and influencing skill, leadership skill, and team-building and motivating skill. Al Omani (2008) stressed that communication skill is the most important skill for project managers; and that project managers require budgeting skill (i.e. knowledge on finance and accounting principles) because they produce and manage budgets. This finding also agrees partly with Juras (2010) because it contains some of the skills highlighted in Juras (2010), such as tending to details, technical proficiency, problem solving, tendency to

analyze complex organization problems and so on. However, some of the skills in Juras (2010) that are not supported in this study are abstract thinking, ability to understand the 'big picture' and orientation to understanding social relation, among others.

Table 1: Comparison between the educators and industry practitioners on the scope of construction professionals' skills

SN	Skills	Educators						Industry Practitioners					
		N		STD	Mode	Mean	R	N		STD	Mode	Mean	R
		V	M					V	M				
1	Budgeting and Control	16	6	0.632	5	4.50	3	42	1	0.707	5	4.48	1
2	Understanding of construction industry requirements	22	0	0.858	5	4.45	5	43	0	0.752	5	4.35	2
3	Organization and Planning	16	6	0.500	5	4.63	1	41	2	0.850	5	4.32	3
4	Problem solving capability.	22	0	0.912	5	4.45	5	42	1	0.780	5	4.31	4
5	Technical and professional expertise	21	1	0.873	5	4.48	4	43	0	0.790	4	4.26	5
6	Leadership capability.	22	0	0.716	5	4.32	9	42	1	0.798	4	4.26	5
7	Ability to present ideas and negotiate	22	0	0.945	5	4.32	9	43	0	0.833	5	4.21	7
8	Efficacy in understanding and executing assigned tasks	22	0	0.941	4	4.14	18	43	0	0.732	4	4.19	8
9	People management	21	1	1.195	5	4.14	18	43	0	0.785	4	4.16	9
10	Multidisciplinary team building and teamwork experience.	22	0	0.883	5	4.27	11	43	0	0.785	4	4.16	9
11	Flexibility and understanding others	22	0	0.907	5	4.18	16	43	0	0.615	4	4.16	9
12	Communication	22	0	0.827	5	4.27	11	42	1	0.889	4	4.12	12
13	Orientation to improving work environment	22	0	1.110	4	3.77	33	42	1	0.670	4	4.12	12
14	Ability to understand the 'big picture'	21	1	1.261	4	3.90	30	43	0	0.851	4	4.12	12
15	Tendency to analyze complex organization problems	22	0	0.973	5	4.23	15	43	0	0.544	4	4.12	12
16	Financial and contractual management.	22	0	0.795	5	4.18	16	43	0	0.799	4	4.07	16
17	Understanding of construction procurement processes	22	0	0.739	5	4.55	2	43	0	0.925	4	4.05	17

Table 1 continued

SN	Skills	Educators						Industry Practitioners					
		N		STD	Mode	Mean	R	N		STD	Mode	Mean	R
		V	M					V	M				
18	Enthusiasm	16	6	1.124	4	3.94	28	42	1	0.825	4	4.05	17
19	Tendency to formulate growth strategies	22	0	1.046	5	4.05	23	43	0	0.615	4	4.05	17
20	Value Management experience	22	0	0.844	4	4.05	23	43	0	0.831	4	4.02	20
21	Records management.	22	0	0.990	4	3.86	31	42	1	0.680	4	4.02	20
22	Time management	22	0	0.848	5	4.36	7	43	0	0.801	4	4.02	20
23	Tending to details	22	0	0.899	4	4.05	23	43	0	0.845	4	4.00	23
24	Ability to adhere to instructions	21	1	0.910	5	4.14	18	42	1	0.663	4	4.00	23
25	Tendency to think about organizational values and business philosophy	22	0	0.926	4	4.00	26	42	1	0.625	4	4.00	23
26	Innovative	22	0	0.902	5	4.36	7	43	0	0.859	4	3.98	26
27	Proficiency in Information Technology (IT)	22	0	0.971	4	3.91	29	42	1	0.867	4	3.93	27
28	Requisite and long term experience	22	0	0.774	4	4.14	18	43	0	0.811	4	3.91	28
29	Dispute resolution capability	22	0	0.767	5	4.27	11	41	2	0.781	4	3.88	29
30	Abstract thinking	22	0	1.181	4	3.82	32	43	0	0.785	4	3.84	30
31	Risk Management	21	1	0.910	5	4.14	18	42	1	0.862	4	3.81	31
32	Good housekeeping	22	0	1.054	3	3.41	34	43	0	0.848	4	3.74	32
33	Motivating and Influencing	22	0	0.935	5	4.27	11	43	0	0.826	4	3.72	33
34	Commercial awareness	22	0	0.844	4	3.95	27	43	0	0.877	4	3.60	34

N is total respondents, V is valid respondents, M is missing respondents, R is ranks

It is noteworthy that the scope of skills for professionals determined in this study cut across the three categories of skills in Juras (2010): technical, interpersonal and conceptual. On one hand, this study does not agree with the finding of Odusami (2002) that discovered decision making as the most important skill for project leaders. The variance could be that while Odusami (2002) focused on leadership and importance, this study holistically examined the scope of skills for all construction professionals. On the other hand, there are some similar skills in both studies. Other important skills in Odusami (2002) are leadership and motivation, communication, problem-solving, time management, organizing, planning and goal setting, technical knowledge, financial management, quality management, listening, delegating and negotiating.

A further comparison among the two groups is further examined by testing the research hypothesis, which was done by finding out if there is significance difference between the groups of respondents on the skills. Table 2 reveals that there is no significance difference between the educators and industry practitioners on all the skills, based on their p-values that are greater than the set p-value (i.e. 0.05). Thus, the research hypothesis is supported for them. The implication of this is that there is general agreement on all the 21 skills by both the educators and industry practitioners, in terms of being the scope of professionals' skills, without given consideration to their different mean values.

Table 2: Test of difference between the respondents on the scope of skills for construction professionals.

Skills		Sum of Squares	df	Mean Square	F	p
People management	Between Groups	6.438	15	.429	.408	.969
	Within Groups	43.140	41	1.052		
	Total	49.579	56			
Ability to present ideas and negotiate	Between Groups	5.465	15	.364	.401	.971
	Within Groups	38.121	42	.908		
	Total	43.586	57			
Problem solving capability.	Between Groups	4.808	15	.321	.485	.935
	Within Groups	27.087	41	.661		
	Total	31.895	56			
Financial and contractual management.	Between Groups	6.351	15	.423	.704	.766
	Within Groups	25.252	42	.601		
	Total	31.603	57			
Technical and professional expertise	Between Groups	6.309	15	.421	.591	.865
	Within Groups	29.200	41	.712		
	Total	35.509	56			

Table 2 continued

Skills		Sum of Squares	df	Mean Square	F	p
Value Management experience	Between Groups	10.177	15	.678	1.06	417
	Within Groups	26.806	42	.638	3	
	Total	36.983	57			
Understanding of construction industry requirements	Between Groups	8.235	15	.549	1.14	.352
	Within Groups	20.196	42	.481	2	
	Total	28.431	57			
Understanding of construction procurement processes	Between Groups	12.323	15	.822	1.45	.167
	Within Groups	23.694	42	.564	6	
	Total	36.017	57			
Leadership capability.	Between Groups	6.649	14	.475	.743	.721
	Within Groups	26.860	42	.640		
	Total	33.509	56			
Multidisciplinary team building and teamwork experience.	Between Groups	5.566	15	.371	.479	.938
	Within Groups	32.520	42	.774		
	Total	38.086	57			
Communication	Between Groups	9.975	15	.665	.943	.527
	Within Groups	28.902	41	.705		
	Total	38.877	56			
Time management	Between Groups	8.923	15	.595	.834	.637
	Within Groups	29.974	42	.714		
	Total	38.897	57			
Organization and Planning	Between Groups	10.117	14	.723	1.16	.341
	Within Groups	21.663	35	.619	8	
	Total	31.780	49			
Budgeting and Control	Between Groups	8.824	15	.588	1.30	.252
	Within Groups	15.803	35	.452	3	
	Total	24.627	50			
Tending to details	Between Groups	8.138	15	.543	.694	.776
	Within Groups	32.845	42	.782		
	Total	40.983	57			
Ability to adhere to instructions	Between Groups	4.298	15	.287	.430	.960
	Within Groups	32.845	42	.782		
	Total	40.983	57			
Efficacy in understanding and executing assigned tasks	Between Groups	26.684	40	.667		
	Within Groups	26.684	40	.667		
	Total	30.982	55			
Flexibility and understanding others	Between Groups	7.376	15	.492	.655	.811
	Within Groups	31.520	42	.750		
	Total	38.897	57			
Flexibility and understanding others	Between Groups	4.006	15	.267	.451	.952
	Groups					

1.7 CONCLUSION

The study advocates for the need to establish requisite skills for construction professionals. This is achieved by determining 21 skills that form the scope of construction professionals' skills. The implication of this is that professionals need to develop themselves in these skills for optimal performance. Secondly, the skills can serve as benchmarks for employing professionals in projects and also indicative of their performances. The problem of construction professionals' skill development is hinged on a number of factors. Studies have suggested several ways development could take place (Wall *et. al.*, 2006; Park *et. al.*, 2012). Hence, developmental efforts should focus on these 21 skills in Nigeria.

Additionally, professional builders are saddled with the responsibility of building production management among other roles. This is by no way a mean task, but suggests that the findings of this study have direct implications on professional builders. The implications include, but not limited to:

- i. A paradigm shift from the old perception of what their skills entails to focusing on and acquiring all the identified skills with no exceptions.
- ii. Rigorous developmental efforts, such as seminars, trainings, courses, conferences and so on, organized by professional bodies, private and public organizations on these skills.

1.8 RECOMMENDATIONS

The following recommendations are made from the findings and conclusions of this research:

- ◆ Construction professionals should develop themselves on the 21 skills determined in this study as their scope.
- ◆ Employability of construction professionals should be based on these skills.
- ◆ Students' curriculum in higher institutions should be reviewed to accommodate teaching and training on these skills.
- ◆ Professional bodies and organizations should organize workshops to train professionals on these skills.

1.9 FURTHER RESEARCH

This study is part of an on-going research and it is not yet concluded. Further efforts among others will look at factors that affect professionals' skills development and improvement measures for them.

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