

**London  
South Bank**  
University

Improving the supervisory and managerial  
skills and competences required in  
construction management in Nigeria.

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## TABLE OF CONTENTS

Table of Contents.....	ii
List of Appendices.....	vii
List of Abbreviations.....	vii
List of Figures.....	viii
List of Tables.....	ix
Acknowledgements.....	xii
Abstract.....	xiii
<b>Chapter1: Introduction.....</b>	<b>1</b>
1.1. Justification of the Study/Statement of the Problem.....	2
1.2. Research Questions.....	5
1.3. Aims and Objectives of the Study.....	5
1.4. Limitations and Scope of the Study.....	8
1.5. Significance of the Study.....	9
1.6. Structure of the Thesis.....	10
1.7 Summary.....	12
<b>Chapter 2: Literature Review.....</b>	<b>13</b>
2.0 Introduction.....	13
2.1.1. The Nigerian Construction Industry (NCI).....	13
2.1.2. The Nature and Significance of NCI.....	15
2.1.3. Challenges in the Nigerian Construction Industry (NCI).....	16
2.2.1. Defining Skills in Construction Workplace.....	17
2.2.2 The Meaning of Competence.....	18
2.2.3. Construction Skills and Competences (SC).....	21
2.2.4 Development of Construction Management Skills and Competences (SC).....	24
2.2.5 Development Strategies and Approaches.....	26
2.2.6. Improving Skills and Competences (SC) of Managers.....	38
2.2.7. The Development Challenges.....	39
2.2.8. Roles and Responsibilities between Managers and Supervisors. ....	41
2.2.9. The Skills Necessary for Management and Supervision.....	42
2.2.10. Manager’s Skills and Competence Mode.....	44

2.2.11. Developing Framework & Guidelines for SC Development.....	45
2.2.12. A Pilot Framework.....	47
2.3. Summary.....	49

**Chapter 3: Research Philosophy and Methods.....51**

3.0 Introduction.....	51
3.1. Research Philosophy.....	51
3.2. Research Paradigm and Research Paradigm Adopted by this Study.....	52
3.2.1. Ontology.....	58
3.2.2. Epistemology.....	58
3.3. Research Design and Strategy.....	59
3.4. Methods.....	61
3.4.1. Database for Data Collection.....	62
3.4.2. Stratifying Database.....	63
3.4.3. Questionnaire.....	64
3.4.4. Pilot Questionnaire Survey.....	64
3.4.5. Main Questionnaire Survey.....	65
3.4.6. Bio Data of Respondents from Questionnaire Survey.....	66
3.4.7. Interviews.....	70
3.5. Development and Validation of Framework.....	72
3.6. Summary.....	73

**Chapter 4: The Challenges with Applying and Developing Skills & Competences in NCI...74**

4.0 Introduction.....	74
4.1. The Challenges of Skills and Competences (SC).....	74
4.1.1. Understanding, Agreement and Conflicts.....	75
4.1.2. Multicultural Challenges.....	76
4.1.3. Lack of Effective Relationship, Communication and Teamwork.....	78
4.1.4. Lack of Proper Planning, Scheduling and Directing.....	80
4.1.5. Training Infrastructure and Established Standard.....	81
4.1.6. Lack of Leading Creativity.....	82
4.1.7. Time, Technologies and Environment.....	83

4.1.8. Measuring SC Attainment and Reward System.....	84
4.1.9. Commitment, Value and Unguaranteed Loyalty of Employees.....	85
4.1.10. General Education and Knowledge Sharing Culture.....	86
4.1.11. Information, Communication Management and Internal Management Resources.....	88
4.1.12 Political Interference, Regulation and Policies.....	89
4.1.13. Research, Strategy, Planning and External Challenges.....	90
4.1.14. SC Development is Expensive and Lacks Sponsorship.....	91
4.1.15. Project Budget, Corruption and Ethical Issues.....	92
4.2. Summary.....	93

**Chapter 5: The Skills & Competences (SC) Development Approaches: Effectiveness and Good Practice.....94**

5.0. Introduction.....	94
5.1. SC Development Approaches by Higher Educational Institution in Nigeria.....	94
5.2. Development of Approaches of Nigerian Professional Bodies.....	95
5.3. The Effect of Informal Communication Approach in NCI.....	97
5.4. How Professions Are Rated in Construction Management SC Development.....	98
5.5. Current Good Practices in Nigerian Construction Industry (NCI).....	99
5.6. Analysing SC Development Approaches Practiced in NCI.....	101
5.7. Effectiveness and Outcome of Current Approach to SC Development.....	107
5.8. Summary.....	113

**Chapter 6: The Impact of Effective Skills & Competences (SC) Development**

**on Project Outcomes ..... 114**

6.0. Introduction.....	114
6.1. Need for Skills and Competence (SC) Development.....	114
6.2. Managers' and Supervisors' Effective Skills and Competences (SC).....	115
6.3. Understanding the Knowledge of Effective Skills and Competences.....	116
6.4. Developing Managerial/ Supervisory Competences.....	118
6.5. Importance of Developing Managerial/ Supervisory SC.....	120
6.6. Areas of Development and Development Profile.....	122

6.7. The Impact of Skills and Competences (SC) on Project Outcomes in NCI.....	124
6.8. Important SC of Construction Management in NCI.....	128
6.9. Difficult SC of Construction Management in NCI.....	131
6.10. SC that need Development in Construction Management in NCI.....	134
6.11. Summary.....	137

**Chapter 7: Critical Success Factors (CSF) to Skills & Competences (SC) Development in NCI.....138**

7.0. Introduction.....	138
7.1. Leadership Management and Support.....	138
7.2. Information Communication Technology.....	139
7.3. Strategy and Purpose.....	140
7.4. Review and Measurement.....	141
7.5. Resources.....	142
7.6. Elementary Orientation and Education.....	143
7.7. Human Resource Management.....	143
7.8. Enterprise and Entrepreneurial Skills and Competences.....	145
7.8.1. Nature of Enterprising and Entrepreneurial Development.....	146
7.8.2. Enterprise and Entrepreneurial Programmes .....	147
7.9. Organisational Culture.....	148
7.9.1. Culture as a Critical Success Factor in SC Development.....	150
7.10. Infrastructure and Organisational Structure.....	152
7.10.1 Organisational Structure as a CSF in SC Development in NCI.....	153
7.11. Other CSF That Encourage SC Development in NCI.....	155
7.12. Summary.....	161

**Chapter 8: Developing and Validating a Framework and its sets of Supporting Guidelines.....162**

8.0. Introduction.....	162
8.1. Design of Skills and Competences Development (SCD) Framework .....	162
8.1.1. Target Audience.....	163
8.1.2. Structure of the SCD Framework.....	163

8.1.3. Tailoring the SCD Framework.....	163
8.2. The Framework.....	164
8.2.1. Duration of Training.....	165
8.2.2 Admission Requirement.....	165
8.2.3 Education, Training and Practice Stage.....	165
8.2.4. Experience Stage.....	167
8.3. Validation of SCD Framework and Guidelines.....	168
8.3.1. Characteristics of Participants in the Validation of SCD Framework.....	169
8.3.2 Contributions from Validators.....	170
8.4 Validated Framework and Guidelines.....	174
8.4.1 Framework.....	174
8.4.2. Guidelines Supporting SCD Framework.....	176
8.4.2.1. General Steps.....	176
8.4.2.2. Guidelines for Training and Trainee.....	178
8.4.2.3. Guidelines for the Trainer.....	179
8.4.2.4. Guidelines for Professional Construction Organisations (PCO) and Organisations.....	180
8.5. Summary.....	182
<b>Chapter 9: Conclusions and Recommendations.....</b>	<b>183</b>
9.0. Introduction.....	183
9.1. The Research Process.....	183
9.2. Conclusions of the Research.....	185
9.2.1. Construction Management Skills and Competences (SC).....	185
9.2.2. Construction Management SC in NCI.....	186
9.2.3. Challenges with Applying and Developing SC in NCI.....	186
9.2.4. Impact of Effective SC Development on Project Success in NCI.....	187
9.2.5. Efficacy of Skills and Competences Development Approach.....	188
9.2.6. Critical Success Factors (CSF) to Effective SC Development in NCI.....	188
9.2.7. Developing and Validating SC Development Framework and Guidelines that support the Framework.....	189
9.3. Recommendations.....	190

9.3.1. Recommendation for Academics.....	190
9.3.2. Recommendations for the Industry.....	191
9.4. Limitation of the Study.....	194
<b>References.....</b>	<b>195</b>

## **LIST OF APPENDICES**

Appendix A – Pilot Survey.....	280
Appendix B – Ethical Approval Acknowledgement.....	288
Appendix C – Introduction letter from Researcher to NSE.....	289
Appendix D – Introduction letter from Supervisor to NSE.....	290
Appendix E – Responds letter from NSE backing the Research.....	291
Appendix F – Main Study Questionnaire with Cover Letter.....	292
Appendix G – Main Interview Questions.....	299
Appendix H – Draft Framework and Guidelines Before Validation.....	302
Appendix I – Framework Validation Questionnaire.....	309
Appendix J – Industrial Training Fund.....	310

## **LIST OF ABBREVIATIONS**

SC – Skills and Competences

SCD – Skills and Competences Development

NCI - Nigerian Construction Industry

NSE – Nigerian Society of Engineers

NICE – Nigerian Institute of Civil Engineers

NIA – Nigerian Institute of Architects

NIOB – Nigerian Institute of Builders

NIQS – Nigeria Institute of Quantity Surveyors

COREN – Council for Regulation of Engineering in Nigeria

ARCON – Architects Registration Council of Nigeria

PCOs – Professional Construction Organisations

CSF – Critical Success Factors

ICT – Information and Communication Technology

UK – United Kingdom

FCT – Federal Capital Territory, Abuja

NBS – Nigeria Bureau of Statistics

**LIST OF FIGURES**

Chapter 2 – Figure 2.1: Three Dimension of Competences.....20

Chapter 2 - Figure 2.2: Model for Knowledge Sharing..... 28

Chapter 2 – Figure 2.3: Components of Social Competences Cluster.....43

Chapter 2 – Figure 2.4: Managers Skills and Competences Model.....44



Chapter 2 – Figure 2.5: Integrated Model of Skills and Competences.....	46
Chapter 2 – Figure 2.6: Structure of this PhD thesis.....	48
Chapter 5 – Figure 5.1: Training is the Construction Management SC Development Approach in the NCI.....	101
Chapter 5 – Figure 5.2: Training is the Construction Management SC Development Approach in NCI.....	102
Chapter 6 – Figure 6.1: Eye of Competence.....	122
Chapter 6 – Figure 6.2: Impact of SC Development is measured on the Project Outcome..	125
Chapter 7 – Figure 7.1: Figure 7.1 Query of CSF in SC Development in NCI.....	159
Chapter 7 – Figure 7.2: Text Search shows how Participants used Knowledge while responding to CSF.....	160
Chapter 8 – Figure 8.1: SC Development Framework for Construction Managers in Nigeria.....	176

## LIST OF TABLES

Chapter 1 – Table 1.3: Matching the interview/questionnaire questions with the research objectives.....	7
Chapter 2 – Table 2.1: Key SC for Managing Construction Refurbishment.....	22
Chapter 3 – Table 3.1: Difference between Quantitative & Qualitative Research Method..	55
Chapter 3 – Table 3.2: Different types of Research Designs.....	60
Chapter 3 – Table 3.3: Stratification of database.....	63

Chapter 3 – Table 3.4: Specialisation of Respondents’ organisation.....	66
Chapter 3 – Table 3.5: Range of Respondents’ Current Position.....	67
Chapter 3 – Table 3.6: Experiences of Respondents in Construction Management in NCI..	67
Chapter 3 – Table 3.7: Respondents Time at Current Organisation.....	68
Chapter 3 – Table 3.8: Respondents Career Structure and Positions Held.....	68
Chapter 3 – Table 3.9: Qualifications Obtained by Respondents.....	69
Chapter 3 – Table 3.10: Gender of Respondents.....	69
Chapter 4 – Table 4.1: SC Development is Expensive.....	91
Chapter 5 – Table 5.1: Construction Management SC Development Approaches in NCI....	101
Chapter 5 – Table 5.2: The Effectiveness of SC Development Approaches in NCI.....	108
Chapter 5 – Table 5.3: The satisfaction of SC Development Approaches on Project in NCI.....	109
Chapter 5 – Table 5.4: Training in the last Five year has been Satisfactory.....	110
Chapter 5 – Table 5.5: SC Development Approach in NCI is a Global Practice.....	111
Chapter 5 – Table 5.6: Responsibility of Training Cost.....	112
Chapter 6 – Table 6.1: Hierarchy of Important SC in Construction Management in NCI...	129
Chapter 6 – Table 6.2: Difficult SC Construction Management in NCI.....	131
Chapter 6 – Table 6.3: SC that need Development and Improvement.....	134
Chapter 7 – Table 7.1: Culture as a Factor Influencing in SC Development in NCI.....	151
Chapter 7 – Table 7.2: Tradition as a Factor Influencing in SC Development in NCI.....	151
Chapter 7 – Table 7.3: Organisational Structure as a Factor influencing SC Development in NCI.....	154

Chapter 7 – Table 7.4: Certified Qualification as CSF in SC Development in NCI.....	156
Chapter 7 – Table 7.5: Respect of Peers as CSF in SC Development in NCI.....	157
Chapter 7 – Table 7.6: Promotion and Career Development as CSF in SC Development.....	158
Chapter 7 – Table 7.7: Willingness to Learn as CSF in SCs Development in NCI.....	159
Chapter 8 – Table 8.1 Validators’ opinion on SC development framework.....	170
Chapter 8 – Table 8.2 Important but missing from this framework.....	171
Chapter 8 – Table 8.3 Is the framework applicable in the NCI.....	172
Chapter 8 – Table 8.4 Validators’ observations and recommendations.....	173
Chapter 8 – Table 8.1: SCD Framework.....	174

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## **ABSTRACT**

Construction professionals understand the complexity and everchanging nature of the built environment which continues to raise enormous challenges for managers. The industry has embraced managing people as an effective strategy in managing successful projects. In Nigeria, the industry employs and deploys an extremely diverse range of workers from various backgrounds, expected to be managed and supervised. Ineffective management caused by lack of updated skills and competences (SC), has been identified in several literatures as a major setback in the Nigerian construction industry (NCI). The purpose of this study was to identify and understand these SC, examine the critical success factors that promote their development, and investigate the challenges associated with their development and application.

The data, on which this study was based, was sourced from 155 completed and usable survey questionnaires and 30 semi-structured interviews with registered construction professionals in Nigeria. Participants were drawn from membership of the Nigerian Society of Engineers, practicing in both private and public sectors. The objectives of this study include exploring and documenting the current SC development approaches in the NCI and its impact on project outcomes. The study inter-alia revealed, that training and online self-education are two popular ways Nigerian construction managers and supervisors develop their SC. Training infrastructure and standard, measuring SC attainment and reward system, lack of commitment, values and unguaranteed loyalty of trainees, general education and knowledge sharing culture, political interference, regulation and policies, expensive SC development and lack of sponsorship, corruption and ethical issues are key challenges to SC development in the NCI. The study developed and validated a framework and a set of guidelines for the development of construction management SC the NCI.

The study established that SC development help save time, cost and positively impacts quality and general project outcome. It identified and documented the top twenty important SC, top twenty difficult SC and the top twenty SC that need development. These SC; team building, communication, programme design, motivation, programme maintenance, supervision of others, quality control/assurance, employee training, creativity, leadership, company law, construction law, recruitment/selection, health and

safety, material planning and control, manpower planning and control, in no order of preference, were rated in both top twenty important and difficult SC. Only employee training, as an SC, was rated in the top twenty SC that need development as well as previous two categories. Organisations are responsible for SC development and can now use the identified SC to prioritize and profile their managers and supervisors before investing in their development.

The critical success factors for SC development in the NCI are willingness to learn, obtaining valuable certified qualification, promotion and career development, obtaining respect of peers, job creation and generating wealth. Organisational culture and structure are other established success factors in SC development in the NCI. The study recommends that all aspects of SC trainings be practical and technical. It also recommended that knowledge-sharing should be encouraged in every construction organisation. Furthermore, students in construction management programmes in Nigeria tertiary institutions should be exposed to acquire experience from the industry. Further study could investigate how SC of managers and supervisors can be profiled and monitored. Similarly, there is need to develop a model for monitoring and identifying shortages and gaps in construction management SC in Nigeria.

## **Chapter 1:**

### **Introduction**

As construction projects change over time, there is need for managers and supervisors to continuously develop and improve their managerial skills and competences (SC) to enable them deliver the mandates of their projects successfully. This study has in an effort to provide solution to the development and improvement of managers' SC, developed and validated a framework and guidelines which are expected to be followed by both the academics and the industry practitioners to address the gap in SC of project managers and supervisors.

The study focused on the Nigerian construction industry (NCI) but the findings and recommendations may be applied in several other African countries and sectors. This is because Nigeria arguably, reflects the entire challenges, diversity and opportunities that Africa holds, hence Nigeria is a good model for the African continent. Secondly, construction industry is an encompassing industry that cut across many other industries.

For an understanding of components of the study, SC were defined as well as what constitutes construction management SC. Through literature, the existing approaches and strategies for developing and improving SC were discussed. Challenges that hinder these developments were discussed as well. A distinction was made to outline the roles and responsibilities managers and supervisors play and the differences. The study outlined top SC needed for management and supervision of construction projects in their order of importance.

To assess the current perception of the industry, one hundred and fifty-five questionnaires were completed and returned by active members of Nigerian Society of Engineers and thirty of them were interviewed to further understand the survey results. From the literature and data gathered and analyzed the study examined organizational structure, culture and motivation as influencing factors in the SC development and improvement approaches practiced within the NCI. It further investigated the challenges with approaches currently practiced in the local industry, while exploring the impact of effective SC development on project outcomes. The study also examined the efficacy of developing SC and then documents the critical success factors.

A framework and a set of guidelines which is the main aim of this study was developed and validated through ten questionnaires completed by the same construction professionals who are members of NSE.

### **1.1. Justification for the Study/Statement of the Problem**

Two quotes from a popular Irish dramatist, George Bernard Shaw, summarizes this work and its contributions towards developing and improving the performances of managers and supervisors.

“The reasonable man adapts himself to the world; the unreasonable man persists in trying to adapt the world to himself. Therefore, all progress depends on the reasonable man.”

“Progress is impossible without change, and those who cannot change their minds cannot change anything.”

In a rapidly changing world of complexity and uncertainty (Hayward and Jackson, 2011; IBM, 2010; Faherty 2015), progress is only achieved by rational and innovative strategies of entirely reasonable project managers (Ries, 2011; Kerzner, 2019).

In the context of this study, a project manager, project engineer, site manager, supervisor, builder or foreman will be referred to as manager and/or supervisor. Shohet and Laufer (1991) cited by Hardison *et al.* (2014) defined any of them as an organizer, planner, facilitator, while Zhang *et al.* (2018) saw them as leaders of daily construction management systems for successful deliverables and performance. Construction works are complex projects and hence, good project management is required and considered highly important for a good performance (Khosravi and Kähkönen, 2015; Ahuja *et al.* 2017). Oke and Abiola-Falemu (2009) revealed that the performance of low construction management is because the quality of materials and workmanship in Nigeria construction industry (NCI) is unsatisfactory. They also clearly listed the two main causes: (1) The use of substandard materials, and (2) Poor and inefficient supervision and management of workforce: which is the focus of this study. In section 2.2.2, managerial and supervisory competences was identified as health and safety awareness and occupational knowledge. Jensen (2012) identified the cause of the problem intimated by Odusami *et al.* (2011) to be the limited degree of learning. The worldwide



shortage of skilled project managers to effectively run projects/portfolios is still severe as project resources must be allocated carefully, judiciously and prudently to reflect today's increasing demands for greater corporate accountability, higher productivity, shorter schedule and lower costs (Nguyen, 2009). Workers' performance, which is largely dependent on their competences, is a key success factor for any construction company (Barker and Ingram, 2011). For the construction industry to solve this problem and achieve the highest standard and value, emergent importance and urgency is already placed on learning, effectively developing skills and improving the competence of worker's managers and their tacit knowledge skill base in supervision (Dada and Musa, 2016; Detsimas *et al.* 2016). The Managing Director of Nigeria's Bank of Industry Mr. Olukayode Pitan in an interview with Punch newspaper (2018) emphasized that the stock of competent construction workers is rapidly dwindling with a 15% annual decline. While assessing the NCI, Nigeria Institute of Building's President, Mr Kenneth Nduka, had said that poor performance of NCI is caused by poor skills and corruption, lamenting that it is disheartening that as a result, only 5% of the construction done in the country are carried out by Nigerians (Vanguard Newspaper, 2019).

Globally, Guerrazzi (2016) recorded that construction organisations train workers and their training impact on the general performances of their organisations. The author argued that these training mostly occur after failed attempts at hiring appropriately skilled workforce, which makes it more expensive to allocate time and budget. This validates the theory that organisations' training budget adjustment is directly proportional to the state of the industry's market (McDonnell and Burgess, 2013). Because of the cuts in training budget, there is shortage in supply of SC, hence projects suffer negative impacts (Doloi *et al.* 2012; Lau and Pang, 2018,).

Skills shortages relate to absence of individuals with required skills to carryout assigned tasks (Oyegoke *et al.* 2008; Yamada, Otchia and Taniguchi, 2018). To Windapo (2016), shortage of skills is shortage of jobs. He explained that the recruitment in the construction industry is constrained by a lack of skilled workforce and supervision even though there is an apparent abundance of labour with possibly high qualifications but with unsuitable managerial skills. One of the main causes of shortage of SC in construction is the construction boom between 1999 to 2007 and early 2008 which led to increase in the number of construction firms and activities, without corresponding increase in required skilled managers (Office of Government

Commerce, UK 2010). According to OGC, the construction industry is an ever-dynamic industry and a major contributor to every economy.

As Dr Martin Barnes, Association for Project Management President (2003-2012) puts it, “At its most fundamental, project management is about people getting things done.”

Studies (Chipulu *et al.* 2013; Egbu, 2013; Hardison *et al.* 2014; Marozzi and Bolzan, 2016; Hackman, Agyekum and Smith, 2017) outline the roles which teamwork, skills acquisition, information gathering and sharing, competences and knowledge development have played in today’s project management practices. These elements are embedded and are better justification for project management. The Project Management Institute (PMI) defines project management as

“the application of skills, knowledge, tools, and techniques to project activities to meet the project requirements” (PMI 2011, Weaver and Too 2013). The Association for Project Management Project APM (2013) noted that “project management is the application of processes, methods, knowledge, skills and experiences to achieve the project objectives”.

The International Project Management Association (IPMA) states that:

Project Management is the planning, organizing, monitoring, and controlling of all aspects of a project and the management and leadership of all involved to achieve the project objectives safely and within agreed criteria of time, cost, scope, and performance/quality. It is the totality of coordination and leadership tasks, organisation, techniques, and measures for a project. It is crucial to optimize the parameters of time, cost and risk with other requirements and to organize the project accordingly (IPMA, 2006).

According to Ingason and Jónasson (2009):

although these are very useful definitions, they are rather wide and therefore do not give a comprehensive answer to the question of what knowledge and skills must be mastered by the project manager in the future to excel—an issue that is of importance not only for project managers, project sponsors, clients,

customers, contractors, and other project stakeholders, but especially for everyone who is training future project managers.

They argued that project management is dynamic and changes, quoting Kerzner's (2006) overview of project management from 1945-2006 which is true. Their report only outlined the knowledge and skills for the future but failed to discuss ways of continuous improvement to meet the demand of the future, which is what this study is meant to achieve.

### **1.2. Research Questions**

1. What impact does the capabilities of managers and supervisors have on project outcomes in construction?
2. What constitutes competence in managers and supervisors, and how can it be developed effectively?
3. What are the challenges of developing skills and competences (SC) in Nigeria?
4. How can developed managerial/ supervisory SC in practice be measured, reviewed, reevaluated and improved to suit "the next project"?
5. What are the factors that influence the development of SC?

### **1.3. Aim and Objectives of the study**

#### **Aim**

To develop and validate a framework and a set of guidelines for the development and improvement of skills and competences of managers and supervisors, for carrying out successful construction projects in Nigeria.

## Objectives

1. To critically review the literature in the general areas of managerial and supervisory skills and competence development, improvement and impact, with specific reference to the construction industry.
2. To critically examine the factors (including culture and organisational structures) that promote or discourage skills development and improvement among construction managers.
3. To investigate the challenges associated with skills and competences development and improvement approaches currently in practice within the construction industry in Nigeria.
4. To investigate the efficacy of developing skills and subsequently improving competences in delivering successful construction project.
5. To explore and document the impact that effective skills and competences development and improvement have on project outcomes in construction.
6. To explore and document the skills and competences improvement approaches currently in practice in the Nigerian construction industry, to determine their effectiveness and in doing so, document lessons learned and good practices.
7. To examine and document the critical success factor (CSF) to effective skills and competences development and improvement in construction sectors.
8. To develop and validate a framework for the development of managerial and supervisory skills and competences in the Nigerian construction industry.
9. To develop and validate sets of guidelines which support the developed framework.

Table 1.3 presents an alignment of the research questions to the research objectives. The table also enables the reader to track the questions in the questionnaire and interview samples attached (see appendices 1 and 2).

Research Objectives	To critically review the literature in the general areas of managerial and supervisory skills and competence development, improvement and impact, with specific reference to the construction industry.	
<u>Corresponding Questions</u>	Literature review	
Research Objectives	To critically examine the factors (including culture and organisational structures) that promotes or discourages skills development and improvement among construction managers.	
<u>Corresponding Questions</u>	Interview Questions B10, B11	Questionnaire Questions 12, 14
Research Objectives	To explore and document the impact that effective skills and competence development and improvement have on project outcomes in construction	
<u>Corresponding Questions</u>	Interview Questions C1, C2, 10	Questionnaire Questions 8A
Research Objectives	To investigate the challenges associated with skills and competences development and improvement approaches currently in practice within the Nigeria construction industry.	
<u>Corresponding Questions</u>	Interview Questions B6, B7	Questionnaire Questions 8B, 10A
Research Objective	To investigate the efficiency of developing skills and subsequently improving competence in delivering successful construction project.	
<u>Corresponding Questions</u>	Interview Questions B1, B2, B3, B4, B5	Questionnaire Question 9
Research Objective	To explore and document the skills and competences improvement approaches currently in practice in the Nigerian construction industries, to determine their effectiveness and in doing so, document lessons learned and good practices.	
<u>Corresponding Questions</u>	Interview Questions B8, B9	Questionnaire Questions 9, 11, 13
Research Objective	To examine and document the critical success factor (CSF) to effective skills and competences development and improvement in construction sectors.	
<u>Corresponding Questions</u>	Interview Questions B9	Questionnaire Question 8C, 10B
Research Objective	To develop and validate framework for the development and improvement of supervisory and managerial skills and competence in the Nigerian construction industry.	
<u>Corresponding Questions</u>	Interview Questions C4	
Research Objective	To develop and validate a set of guidelines which supports the developed framework.	
<u>Corresponding Questions</u>	Interview Questions C5, C6	

**Table 1.3 Matching the interview/questionnaire questions with the research objectives**

Table 1.3 illustrates the questions sections in the questionnaire and interview that were asked to address the research objectives numbered in the table. The research objectives were tabularized to ensure that all the objectives of this research were adequately investigated and satisfactorily addressed.

#### **1.4. Limitations and Scope of the Study**

Global project management has been trending around the world since the impact of 2008 economic crisis, with focus on the development and improvement of SC of managers and supervisors. On 1 November 2008, organisations around the world marked International Project Management (IPM) Day, which is observed every year to intensify awareness on the value of project management within small and large businesses, government and social communities (Felstead *et al.* 2012, Mason and Bishop 2015). Nigeria has had its share of both the economic crisis and poor practices (Nageri *et al.* 2013; Nduka, 2019). Hence, improving the managerial and supervisory SC required in managing construction projects, especially in Nigeria, is the focus of this study. The study was designed to capture all levels of construction management. The main unit of study are the managers and their supervisors, the research also captured organisation as managers and supervisors work in an organisation. The study focuses primarily on Nigeria construction industry; and it is hoped to help other developing countries to identify, develop and improve the SC of their managers and supervisors.

The scope of this study falls short of developing detailed SC improvement programmes for managers and supervisors. This is another important area for further study. The primary focus of this research is to develop a framework and a set of guidelines for the development of construction management SC in the NCI and through that improve awareness, understanding, and support for managers and supervisors in the NCI. As construction project management is barely practiced in the NCI. This research is focused to construction management professionals in Nigeria who are university graduates and members of professional construction organisations, A database of Nigerian Society of Engineers was deployed to gather data. Nevertheless, the findings and recommendations of this study could be useful to all construction professionals in Nigeria and other African countries. A further research could study how this study can form part of vocational education in Nigeria.

### **1.5. Significance of the Study**

The focus on improving the SC of managers and supervisors in the Nigerian construction industry (NCI) made this study capable of adding to the existing body of literature on SC, both in Nigeria and across the African continent. This study benefits both construction practitioners and academics. The main benefits of this study, in terms of its contribution to research and to practitioners, are summarized below:

- This study supports other existing literatures that organisational structure and culture promotes the development of SC.
- Training and online informative and educational resources was established as the two most popular SC development approach among construction professionals in Nigeria.
- Top twenty (20) important SC, Difficult SC and SC that need development in construction management in Nigeria construction industry (NCI) were identified and documented in the order of their significance to construction management in NCI.
- This study established that organisations should be responsible for funding the training of their employees, and employees should commit to the investment in their development and should enable their organisation recoup such investment before leaving the organisation.
- Willingness to learn, promotion and career development, obtaining certified qualification and obtaining the respect of peers in this ranked order, are all motivating factors to SC development in Nigeria.
- This study developed and validated a framework and a set of guidelines for the development of construction management SC. This framework and guidelines were developed and validated by local practitioners in the NCI, an addition to existing literatures which are mainly studies of advanced industries.

## 1.6. Structure of the Thesis

This thesis has been arranged in a rational way, to enable the author's thoughts to be appreciated by the reader, while achieving the objectives of the study.

The thesis follows this structure:

- i) Though there is a dedicated chapter for detailed review of literature, there is still a brief review of literature at every stage of this thesis for clearer understanding of issues discussed in the chapters of the thesis.
- ii) Quantitative and qualitative data were obtained from the distribution of questionnaires and interviews conducted with members of the Nigerian Society of Engineers.
- iii) To address the aim of this study, the objectives were categorized, discussed and addressed in different chapters of this study and data collected were presented and analyzed accordingly, within their relevant chapters. Hence, there was no need to dedicate a chapter for data presentation and analysis.

**Chapter 1** introduces the entire study and provided the guide into the study. Discussing the scope and benefits of the study.

**Chapter 2** introduces the nature and significance of the NCI. It then reviews the literature related to SC in construction management, explaining the meaning of SC in the construction sector. It also investigated the collaboration between SC and how they are developed. It further identified the SC used in construction management and discussed how they can be developed and improved, and addressed the first objective of this study.

Following that, **Chapter 3** discusses research philosophy, and the methods adopted in this study, including the selection process and justification for the research approach adopted. It discusses the difficulties encountered during the research and various research strategies used to mitigate them. The methods employed for quantitative and qualitative data analyses were also discussed.

**Chapter 4** elaborates challenges with applying and developing SC in the NCI. The challenges include understanding, agreement and conflicts, multicultural challenges, lack of effective relationship, communication and teamwork, lack of proper planning, scheduling and directing, training infrastructure and established standard, lack of leading creativity, time,



technologies and environment, measuring SC attainment and reward system, commitment, values and unguaranteed loyalty of employees, general education and knowledge sharing culture, information, communication management and internal management of resources, political interference, regulation and policies, research, strategy, planning and external challenges, SC development is expensive and lacks sponsorship, project budget, corruption and ethical issues, organisational culture and structure were explicated on as influencing factors in development and improvement of SC. This chapter addressed the third objective of this study.

**Chapter 5** considers the SC development and improvement approaches currently in practice in the NCI by looking at the development and improvement approaches applied by Nigerian institutions and Nigerian professional construction organisations (PCOs). This chapter also assesses the effects of informal communication approach in the NCI. It further looks at how professions are rated in construction management development. It finally analyses some current good practices and level of satisfaction. This chapter addressed the sixth objective of this study.

**Chapter 6** investigates the impact that effective SC development and improvement have on project outcomes. It discusses the need for SC development, effective SC of managers and supervisors, understanding knowledge, SC. It further considered the importance of developing managerial/ supervisory SC and areas of development. This chapter addressed the fourth and fifth objectives of this study.

**Chapter 7** evaluates the critical success factors to SC development and improvement like enterprise and entrepreneurial SC, the nature of enterprise and entrepreneurial education, enterprise and entrepreneurial programme, factors that encourage SC development and improvement. This chapter finally outlined the critical success factors of construction management SC development in NCI. This chapter addressed the second and seventh objectives of this study

**Chapter 8** outlines and develops SC development framework and its supporting guidelines. In this chapter, data from the questionnaire survey and semi-structured interviews were analysed and synthesized to form the framework and guidelines for developing and improving/g SC. The framework and guidelines were developed, with important aspects like

duration of training, admission requirements, education, training and practice and experience stages of SC development are discussed. The framework and guidelines were then validated by ten (10) of the research participants. This chapter addressed the eighth and ninth objectives.

**Chapter 9** summarizes other chapters of this study to conclude the research process, limitations and its contribution to academics, construction management and the industry, especially, as it relates to the development and improvement of SC. It also provides recommendations for this and future studies.

### **1.7. Summary**

This chapter has set out the background and rationale for this study, it formulated the research questions, listed the aim and objectives of the study. It also outlined the structure of the thesis. The basis of this study is improving the supervisory and managerial skills and competences required in managing construction projects in Nigeria.

Managers and supervisors are responsible for what happens in construction sites, from start to completion as they are expected on site and issue the final instruction before tasks are executed. And the major cause of construction failure is lack of effective management and lack of effective management is triggered by lack of SC needed in construction management. The intention is to develop an effective framework and a set of tailored guidelines for the development and improvement of SC of managers and supervisors for a more successful construction management in Nigeria. The next chapter reviews the literature in SC in construction management.

## **Chapter 2: Literature Review**

### **2.0. Introduction**

This chapter introduces the nature and significance of the construction industry in Nigeria. It also reviews the existing literature on skills and competences (SC) development and improvement. In addition, it presents the meaning of SC in construction management. Development and improvement of SC of managers and supervisors in construction organisation was extensively discussed. The development strategies were identified and outlined in this chapter. The challenges of SC were discussed. Roles and responsibilities of managers and supervisors were listed and distinguished. The SC in the literature were identified and discussed. The chapter discusses key issues concerning the development of a framework and guidelines for SC development.

#### **2.1.1. The Nigerian Construction Industry (NCI)**

Across the world, the construction industry is continually growing. The industry is mostly concerned with the development, provision and maintenance of infrastructure and other civil engineering works like roads, bridges, railways, ports, residential and commercial real estates. Consequently, the continual growth can be explained by the need to accommodate demographic and social changes that happen with time. Factors like a rising middle class and societal needs for better living conditions and infrastructure, migration and urbanization, all contribute to the cause growth of the industry.

Modern and organised construction, arguably began in the early 1940s in Nigeria, with a few foreign companies. The discovery of oil about ten years after Nigeria's independence in 1960, from the United Kingdom led to a surge and continuous demand for construction services, as the country was then opened to foreign and local investments. Thus, the obvious needs are for infrastructure to drive the new economic growth. The industry, since the 60s and 70s, has largely been dominated by foreign companies, generating revenue and jobs for government and Nigerians, though with lots of imported resources and skills as against using mostly local resources thereby promoting local content (Nigeria Bureau of Statistic, 2017).

As at March 22, 2019, the current population of Nigeria is 199,507,890, based on the latest United Nations estimates. Nigeria population is equivalent to 2.6% of the total world

population. From United Nations and PwC analysis, Nigeria is expected to add no less than 200 million more people to its current population between 2018 and 2050. The country is also projected to displace the United States, currently ranked the 3rd most populous in the world by 2050 (PricewaterhouseCoopers, 2019). This population projection is largely responsible for the continued activeness of the NCI. A United Nations' report published on Cable News Network by Adegoke (2017) forecasted that half of world's population growth between 2017 and 2050 will happen in Africa and Nigeria will lead this growth. Adegoke (2017) described Nigeria as "an economic powerhouse" but added that there is now an urgent need for efforts to curb Nigeria's "inadequate infrastructure". This assertion is true as there is a strong link between rapid population growth and rapid infrastructural demand. Mikovits, Rauch and Kleidorfer (2018) argued that both are mutually reinforcing. The World Economic Forum (2018) has identified this as a global challenge in an article titled; the world needs to build two billion new homes over the next eighty years:

"With the global population rising at 45m per year, comes the inevitable rise in demand for food, water and materials, but perhaps most essentially, housing..."

(World Economic Forum, 2018)

The article went on to explain that as more developing countries deliver progress in housing and infrastructure similar to developed countries, thereby improving the standard of living and extending the life expectancy of their people, household sizes will decrease like developed countries. This will similarly place greater demand on supply of new housing units in developing countries. So, if this gap between household demand and population growth occurs globally at about 7-8% over the next 80 years, and coupled with other factors and demographics, this will require a global addition of two billion homes. Recently, Nigeria's current Vice President, Professor Yemi Osibanjo confirmed that Nigeria already has 20million housing deficit (Ajimotokan, 2018). Adding the inadequate infrastructure, consequently, NCI has drawn global attention for its capacity to deal with both existing and projected construction challenges.

### **2.1.2. The Nature and Significance of the Nigeria Construction Industry (NCI)**

Over the years, the NCI has evolved, because of demands for real estate, housing and the need to provide infrastructure to support her multi-ethnic and multicultural population. The Africa's most populous country has a growth rate of 3.2% per annum (Akinyemi and Isiugo-Abanihe, 2014) and arguably, the largest economy in the African continent (Mukhtar *et al.* 2016). After the return to democratic governance in 1999, government adopted Public - Private - Partnership policy to unlock the market in the construction industry by encouraging foreign direct investment, which emboldened local companies to venture into construction of commercial and residential real estates with supporting infrastructure. Correspondingly, investors within the industry have been on the increase ever since, the main ones being the Federal Government of Nigeria, World Bank Group and African Development Bank. The level of both federal, state and local government interactions with the industry is mainly as regulators, customers and investors. Public - Private or Private - Private partnership in Nigerian construction industry is robust and encouraged by the Nigerian government's inability to provide the necessary resources, skills and competences (SC) to execute projects and provide needed shelters and infrastructure. Thus, as reported by Nigeria Bureau of Statistic (2018), the industry has recorded an average growth rate of 18.08% between 2010 and 2012. Nigerian economy slipped into recession in first quarter of 2016 for the first time in more than two decades. The recession lasted for five consecutive quarters. In the second quarter of 2017, the Nigeria's gross domestic product grew by 0.55% signifying an emergence of the economy from recession (Vanguard Newspaper, 2017). Despite the sluggish economic recovery, Nigeria has remained the region largest economy, with Angola and South Africa among the top three African largest economy (World Bank, 2018).

Nigeria is enjoying a surge in foreign direct investment (FDI) in areas of agriculture, housing and infrastructure like road construction and power generation. On August 8, The *Punch* newspaper (2016) reads in parts:

...As these funds flow into the country and especially into infrastructure, there's an increasing shift towards real estate investment. To a large extent, the real estate sector continues to drive the Nigerian economy because the benefits arising from the growth of this industry births other opportunities such as an increasing demand for labour

which is a bold attempt at bridging the unemployment gap, investment potentials, guaranteed returns on investment amongst other things...

In fact, from Nigeria Bureau Statistics (2018) released report, construction is a joint single sector leader as the highest contributor to the nation's GDP behind Agriculture with 9.67% contribution. According to Olusegun Awolowo the head of Nigerian Export Promotion Council, services like construction, communication, financial and IT combined, constitute 50% of Nigerian GDP (New Telegraph; August, 2018)

Nigeria Bureau of Statistic (2018) also reports that because of the labour intensiveness of the NCI, millions of jobs have been created and there is still potential for increase, to accommodate the rising need for services in the industry. Apart from agriculture, food and beverages, financial industries, manufacturing industry which is greatly dominated by construction related businesses like manufacturing of cement, metal, steel wood, paints etc. the construction industry is the fourth highest employer of labour in Nigeria. Although the NCI is still dominated by international companies, the local content bill passed in April 2014, for the industry, is advancing the favourability of indigenous construction companies, as well as, enabling local businesses to thrive in the industry. Thousands of local firms have emerged since the bill was passed and many more are expected to emerge in the industry, with more jobs created and continual increase in the contribution to GDP. More outcomes of this bill would be felt over time. Certainly, there are prospects for success in the NCI amidst; poor management practice in the industry.

### **2.1.3. Challenges in the Nigerian Construction Industry (NCI)**

The Nigerian construction industry is faced with a barrage of problems, which has been argued to be partly responsible for poor construction performance in Nigeria. This include poor quality of materials and labour, budget and time overrun (Owolabi *et al.* 2014). A decade ago, Nigeria's President Umar Yaradua stated that lack of effective project management practice in the NCI is a major challenge to the country's vision 2020 development programme (Adedeji, 2009). Supporting President Yaradua's view, the Nigerian Institute of Building, NIOB (2009) acknowledged that aside poor-quality materials and quacks in the industry, incompetent management is responsible for poor construction performance in Nigeria. They further suggest that managers and supervisors are responsible for what happens in construction work from start to completion as they are onsite and issue the final instructions

before tasks are executed. Hence, focus should be on them and not just only artisans and materials. Oloyede *et al.* (2010) agreed that the causes of poor construction are mainly due to avoidable human errors born out of negligence which, among others, includes lack of management and supervision of workmanship and supplies. Ojo *et al.* (2013) strongly point to incompetent managers and supervisors as the cause of poor management practice of Nigerian construction industry. Owolabi *et al.* (2014), in support of this position, listed poor site management and supervision as the first of the top five major causes of poor construction in Nigeria. Others are: unforeseen ground conditions, slow decision-making process, client-initiated change orders and necessary change order. Ayeni (2014) has called for adequate and more attention to be devoted to the monitoring of SC of construction managers for a confident representation of the entire project management in all aspects, including use of accurate materials, standard and skilled labour. Ayeni's (2014) study reemphasized the need for a thorough supervision and effective site management.

Other researchers (Olagunju *et al.* 2013; Owolabi *et al.* 2014; Oyedele *et al.* 2015; Ogunde *et al.* 2017) posit that poor construction delivery is caused by lack of effective management and supervision, lack of qualified professionals (use of quacks) and the use of substandard materials. Ameh and Odusami's (2014) study of the education and deficiencies in construction management in Nigeria revealed that Nigerian construction professionals combine construction management practices with their primary roles without being well equipped in the practice of construction management, with civil engineers being the least equipped. Oke *et al.* (2017) suggest that architects and builders are currently the most equipped professional to manage construction projects in Nigeria. This study aims to develop and improve the SC of managers and supervisors in Nigeria irrespective of their professional background in the industry. This study gathered data from Nigerian civil engineers, with a view to addressing this problem. With the increasing global focus on Africa right now, Nigeria is arguably 'a summarized Africa' – both the opportunities and the challenges. The country is a suitable case for this study and can afford the study the comprehension and robustness it deserves.

### **2.2.1. Defining Skills in Construction Workplace**

In managing construction, there exists a broad belief that a strategic approach to human resource management (HRM) consists of designing and implementing internal and sustainable policies and practices that ensure an organisation's human capital, which involves

skills, knowledge and competences and contributes to the performance of the organisation and its expected success (Almatrooshi *et al.* 2016). Huselid *et al.* (1997) believed that skill is one of the three cardinals of the human capital needed for successful delivery of any construction project; others are knowledge and competence. Most times, these three arms of the human capital of human resources are inter-used, misused or misunderstood (Beneitone and Bartolomé, 2014). Over a decade ago, Bailey (2005) stressed the often-interchangeable use of skills, competences, attributes and knowledge. He indicted the higher education, where actual meanings are taken for granted concerning this conceptual confusion.

To provide meaning to skill, Price (2011) defines skill as an acquired ability to execute a task that has pre-determined results, mostly with budgeted resources and time. For clarity, the author explained that skill means the ability to carry out a planned task and achieve planned successful outcome. Expatiating, it is stated as a learned ability to practice in a way. Price (2011) agreeing, asserts that skills are developed by learning. Bailey (2005) calls skills a sense of methods acquired through learning or practice. From all the existing literary definitions of skills, one phrase is most common “acquired by learning”. This is what differentiates skill from talent, making skill development an educational process. Bergersen *et al.* (2015) observe that skills are a factor that directly affect the performance of an individual.

### **2.2.2 The Meaning of Competence**

Since around 1980, the concept of "competence" has been developed to focus on two main elements: “health and safety awareness and occupational knowledge and skill”.

According to Esmee-Sinead and Markham (2019), the construction professionals view project site as a fruitful site for health and safety promotion work, yet many workers know little about the possibilities and promise of health promotion within the construction industry. The authors further argued that only through the understanding of the structural constraints of the construction industry in this way can the possibilities and potentials for undertaking health promotion work be completely embedded within the industry in order to create meaningful change for both managers, supervisors, organisations and the entire industry as a whole. To be competent is to be operate in a healthy and safe environment.

Though competence is widely applied, according to some researchers (Chipulu *et al.* 2013; Young and Conboy, 2013) there is yet to be a universally accepted theory-based definition of

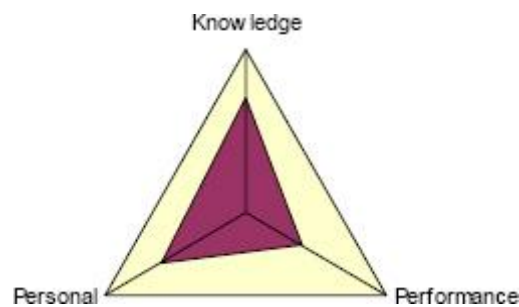


“competence”. Nevertheless, it is strongly argued in the human resources management (HRM) literature that the existing competence frameworks are inadequate and should give way to universal or multidimensional frameworks, typically encompassing functional issues like; job specific skills, cognitive that is knowledge, understanding and social which is behavioural and attitudinal competence dimensions (Chipulu *et al.* 2013).

Boyatzis (1982) described this “occupational knowledge and skills” which the author rephrased “job competency” as "an underlying characteristic of a person in that it may be a skill, motive, trait, aspect of one's self-image or social role, or a body of knowledge he or she uses". Additionally, Boyatzis insist that "because competences are underlying characteristics, they are generic," a position reemphasized by Egbu (1999). Boyatzis (2008) went further to define competence as not just “occupational knowledge and skills” but a “capability or ability, a set of related but different sets of behaviour organized around an underlying construct.”. Hersey and Laws (2009) in their report gave a definition of competence that is similar to Boyatzis’ (2008) definition. They described competence as an assessment of the expected knowledge, attitude and skills an individual possesses, and how the individual combines and uses these attributes to satisfactorily perform his or her task. This also corroborated and supported Gareis and Huemann’s (2000) position that to be competent is to have sufficient knowledge and required experience needed to perform a business process. Adding to the definitions, McGrath *et al.* (1995) are of the view that competence in operational terms is the degree at which these individuals or their organisation can reliably perform satisfactorily or exceed their objectives. Rothwell *et al.* (2018) simply described competences as characteristics associated with job performance. It is important to note the use of the word “underlying characteristics,” which means basic, primary or fundamental attributes.

While the term competence can be defined as the capacity to accomplish a task to a certain specifically defined standard, in direct comparison, the more holistic term competency means the fundamental attributes of a person, such as skills, abilities, knowledge and attitudes needed to fulfil competent standards (Hoffmann, 1999; Hunnius and Schuppan, 2013). This is illustrated by Cartwright and Yinger (2007) in figure 2.1 as three dimensions of competence, which are Knowledge, Performance (abilities) and Personal (attitude) and are demonstrated in different ways outlined below. Knowledge competence is demonstrated by passing an appropriately credential examination. Personal competence can be demonstrated by the

manager's behaviour, which contributes to the delivery of successful projects. Performance competence can be demonstrated by the successful delivery of projects (Cartwright and Yinger, 2007).



**Figure 2.1: Three Dimension of Competences (Cartwright and Yinger, 2007).**

For this study, which aims to identify ways of improving standardized abilities, the conglomerate of knowledge, skills, underlying attitudes and motivations required of a person, we will take both competence and competency as being the same, joining the meanings given above together (Schuppan, 2010; Hunnius and Schuppan, 2013). Competence simply means the abilities and the ability of an employee to do a job well. Keith, Miranda Pye and James Lagard through Pye Tait Consulting (2014) in their report to UK Construction Skills Centre explained the standards-based approach to competence as the ability to do an activity to a prescribed standard.

Crawford (2000) provided a comprehensive understanding by proposing three classifications: Input competences, Output competences and Personal competences. Input competences are the knowledge and skills that a person brings to a job. Output competences are the performance that a person exhibits at the work place. The personal competences are said to be the personal characteristics, underlying a worker's capability to execute a job. Hwang and Ng (2012) believe that the combination of Crawford's (2000) classifications is competence. Dada and Jagboro (2015) summarized Crawford's position by describing competence as an action, behaviour or outcome which a person should be able to demonstrate, or the ability to transfer skills and knowledge to new situations within a given occupational area. From a semantics perspective, the term "competence" is used to define knowledge or observable characteristics. Ahadzie *et al.* (2008) as cited by Hwang and Ng (2012), in a simpler term explained project management competence as the combination of knowledge acquired through training, the application of the acquired knowledge and skills developed through experiences. These studies (Crawford, 2004; Crawford, 2005; Young and Conboy, 2013;

Ogbenjuwa *et al.* 2018) confirmed that competence of project management personnel is important as they have a major impact on project performance and consequently on business performance.

### **2.2.3 Construction Skills and Competences (SC)**

Dada and Jagboro (2015) see skills as an amalgamation of human expertise and facilities, blended together by the organisation processes, systems and culture. PMI (2002) sees competence as “a cluster of related knowledge, attitudes, skills, and other personal characteristics that affect a major part of one’s job, correlates with performance on the job”. The Pye *et al.* (2011) introduced human competence to skills in construction. The human competence build-in the needed appropriate behaviours and situational consciousness at all levels of the construction organisation. This approach embeds deeply into all managers and supervisors, and eventually all management layers, the attitudes and behaviours necessary to maintain human performance. In the rationalistic approaches, this is the primary aim of competence development, which is to transfer important attributes, such as knowledge and skills, to workers who do not possess them (Dall'Alba and Sandberg, 1996; Ogbenjuwa *et al.* 2018). As Sandberg (2000) informs us, "human competence at work," does not refer to all knowledge and skills, but to those people who put these knowledge and skills to use when working. It is this relationship between workers and work that researchers like Egbu (1994, 1999), Nordhaug (1993), Morgan (1988), Kolb (1984), Boyatzis (1982) and McClelland (1973) have long been attracted to when they identified and described the essential human skills and behaviours at work.

Unlike skills which guarantee inputs, competence is defined by outcomes rather than inputs (Young and Conboy, 2013). Competence is the behaviour demonstrated by an individual that enables them do their jobs effectively while skills apply particularly to those professional components required by a job (Woodruffe, 1993). What people can do and deliver makes them competent, which is different from skills, which refer to how they learnt to do it. By focusing on outcome instead of input, the approach to construction skills or competence is ‘not tied to any model of training or education, both formal and informal’ (Pye, Pye and Lagard, 2011). Assessment and skill acquisition can take place in the workplace, training centers in addition to (or instead of) formal settings like colleges. This focus on ‘output’ instead of ‘input’, and applying defined ‘standards’ of competence as a basis for assessing

'performance' and delivering within the construction workplace, means SC will continue to improve in construction workplaces (Pye *et al.* 2011). The key questions that this study has asked are, thus, not only if the current routes to construction skills are adequate for the industry, but whether a vital understanding of what makes a skilled construction manager "competent" in the technical and operational sense remains sufficient for the current-day needs of the industry. What are these skills and competences? Egbu (1994) listed the following as key SC in managing construction refurbishment project (see Table 2.1). Omar and Fayek, (2016) also reemphasized them while modeling and evaluating construction project competences and their relationship to project performance.

<b>KEY SKILLS AND COMPETENCES (SC) IN CONSTRUCTION MANAGEMENT</b>	
<b>1</b>	<b>LEGAL SKILLS AND COMPETENCES</b>
i.	Company law
ii.	Planning law
iii.	Work ethics and employment legislation
iv.	Client/ Consumer protection law
v.	Company strategic planning
<b>2</b>	<b>OPERATIONAL MANAGEMENT SKILLS AND COMPETENCES</b>
i.	Material planning and control
ii.	Productivity control and maintenance
iii.	Manpower planning and control
iv.	Plant planning and control
v.	Programme maintenance (update)
vi.	Site organisation
vii.	Quality control
viii.	Site Security
<b>3</b>	<b>SKILLS AND COMPETENCES FOR DISMISSAL OF LABOUR FORCE</b>
i.	Terminate/Dismissal of supervisor
ii.	Terminate/Dismissal of management
iii.	Terminate/Dismissal of manual labour
iv.	Terminate/Dismissal of subcontractor
<b>4</b>	<b>FINANCIAL MANAGEMENT SKILLS AND COMPETENCES</b>
i.	Costing and estimating
ii.	Budgetary control

<b>5</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH RECRUITMENT OF LABOUR FORCE</b>
i.	Recruit/Select: supervisor
ii.	Recruit/Select: management
iii.	Recruit/Select: manual labour
iv.	Recruit/Select: subcontractor
<b>6</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH EMPLOYEE TRAINING</b>
i.	Employee training: supervisor/ foreman
ii.	Employee training: management
iii.	Employee training: manual labour
<b>7</b>	<b>SKILLS AND COMPETENCES FOR INTERPERSONAL/MGT OF PEOPLE'S SKILLS</b>
i.	Motivating others
ii.	Supervising others
iii.	Leadership
<b>8</b>	<b>SKILLS AND COMPETENCES RELATED TO MARKET PLACE</b>
i.	Market research
ii.	Advertising and promotion
<b>9</b>	<b>JOB ANALYSIS AND SPECIFICATIONS</b>
<b>10</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH MANAGING CHANGE</b>
i.	Managing crisis and conflict
ii.	Managing change
<b>11</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH USE OF TECHNOLOGY</b>
<b>12</b>	<b>SKILLS AND COMPETENCES OF CREATIVITY</b>
<b>13</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH DECANTING OF BUILDING</b>
<b>14</b>	<b>SKILLS AND COMPETENCES RELATED WITH COMPETITION TO WIN WORK</b>
i.	Negotiating client
ii.	Competitive tendering
iii.	Setting objectives and goals
<b>15</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH CONDUCTING MEETINGS AND PR</b>
i.	Conducting meetings
ii.	Public relations
<b>16</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH DECISION MAKING</b>
<b>17</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH EMPLOYEE WELFARE</b>
<b>18</b>	<b>SKILLS AND COMPETENCES ASSOCIATED WITH HEALTH AND SAFETY</b>

*Table 2.1 key skills and competences for managing construction refurbishment (Egbu, 1994).*

#### **2.2.4. Development of Construction Management Skills and Competences (SC)**

Leading organisations have discovered that for a sustained success in managing their construction projects, an important factor will be having a skilled and competent workforce. One of the best ways to pursue this is to develop the leadership (Ebrahimi-Mehrabani and Azmi-Mohamad, 2015). Rothwell *et al.* (2018) argued that leaders need to continually assess their strategy and competent positions and ensure they are aligned with the overall goals, objectives and missions of the organisation for better performance. According to Leskiw and Singh (2007), developing the SC of leaders is a very significant and strategic concept for all organisations in business environment, especially, construction.

Previous studies since 1911 has identified the gaps between workers and work SC. A study by Detsimas *et al.* (2016), reveals that there is an absence of a formal and harmonious mechanism for developing SC in construction industry and that the industry generally resorts to informal self-development initiatives to develop the needed SC. These researchers (Boyatzis, 1982 and 2008, Egbu, 1994; Hunnius and Schuppan, 2013) have been able to define and establish competence as a 'behavioural attitude' of the worker, which enables the effective application of the acquired skills to achieve the desired performance. Most existing findings agree that competence is the worker's behavioural attitude. The focus of this study is how this much-needed attitude in workers' behaviours can be developed and imbibed to increase and sustain their chances of delivering competent outcomes.

Core SC are difficult to imitate but organisations must develop them if they are to innovate (Anumba *et al.* 2005). To develop SC, Egbu (2004) and Rothwell *et al.* (2018) stated that more knowledge, understanding, education and training of construction managers are needed. This supports the assertion of Sandberg (2000) that to better develop SC, managers need to comprehend what constitutes human competences, that is, understanding what constitutes the 'behavioural attitude' that a manager's competences require. To understand this, organisations need to firstly identify skills shortage and its causes. Secondly, how it eventually makes a manager incompetent.

Egbu (2004) further stated that these education and training programmes earlier recommended should reflect the nature of innovation and knowledge management dimensions, which are very complex social processes. According to Sandberg (2000), the

implementation of a managerial or a supervisory personnel education and other forms of competences development calls for organised planning that is based on the analyses of the operational quality requirements of the project, the actual and developed competences of the personnel and the development requirements derived from them. The measures practiced are later evaluated and revised in the light of the results achieved. The re-evaluation and reassessment of the process of competence development is for improvement (Sandberg, 2000).

For organisations that are willing to create a management development programme, one of the vital parts that must be considered first is to recognise and understand the variety of SC which are needed for managers to create needed changes (Burke and Collins, 2001). In the fourth phase of management theories – new management theories – which are developed from late 1980s till now, transactional, transformational and servant theory of management received more attention from researchers. Hence, this study employed some of these theories to find the best management SC which are important, needed and are difficult to develop or apply in a management development programme (section 7.8; 7.9; 7.10). Construction management development is acknowledged in this study by developing some management SC which include developing communication both written and oral, developing inspiration of shared vision, developing teamwork, developing the environment of trust, developing creativity and problem solving, developing motivation in others by accrediting them and managing manpower. Kouzes and Posner (2002) introduced the SC of inspired and shared vision, which is a component of transformational management theory and considered as a skill for management development by many researchers (e.g. Moniz, 2008; Campbell *et al.* 2003; Day, 2001). Building the environment of trust is another focus point of management theory as mentioned by Russell and Stone (2002) and Page and Wong (2000). Bennis (2003), Klagge (1997) and Day (2001) considered developing the trust needed as one of the important part of management development.

One of the SC of management which was introduced by Page and Wong (2000) and Russell and Stone (2002) is communication and listening to others. Several researchers are of the view that effective communication SC are vital for all managers and supervisors, and that these skills must be marked as needed in every construction management development

programme (Dong *et al.* 2017; Holt, 2011; McCauley and Van Velsor, 2004; Campbell *et al.* 2003; Klagge, 1997; Popper and Lipshitz, 1993). While teamwork is one of the parameters of management theory introduced by Page and Wong (2000), many more researchers identified developing management teamwork skills and competences as needed in the management development process (Holt, 2011; McCauley and Van Velsor, 2004; Campbell *et al.* 2003). When Kouzes and Posner (2002) spoke about challenging the procedure in their model of transformational management, they are of the view that challenging the procedure happens by recognizing, creating and supporting new ideas. This is also a means to discover creative ways to improve the success of the organisations. Moreover, in Avolio and Bass' (2004) model of transactional management, being innovative and creative to solve problems is the actual meaning of intellectual stimulation. Egbu (2004), Moniz (2008), McCauley and Van Velsor (2004), Campbell *et al.* (2003) support developing creativity as one of the necessary parts of management development.

In transformational management theory, motivating others to achieve organisational and project goals is a tool for encouraging the heart (Kouzes and Posner, 2002; 2006). Secondly, giving rewards in Avolio and Bass' (2004) model of management was illustrated as a tool for transformational managers and supervisors in motivating others. McCauley and Van-Velsor (2004), Campbell *et al.* (2003) also emphasize the use of the motivation of others as a tool of management development. Goodly (2008) discussed developing and empowering others as one of the main factors of management SC development, positing that managers and supervisors mostly improve from it. This idea was also supported by McCauley and Van-Velsor (2004).

#### **2.2.5. Development Strategies and Approaches**

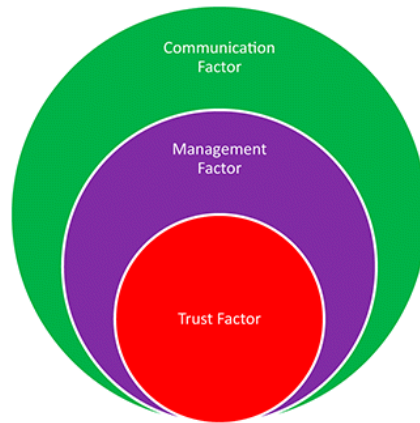
It is very important to develop learning systems, because it is notable to acknowledge that according to Marcus (2004), traditional learning theories like course lecture and workshop are just no longer used. In today's world, these theories would give way to a learning programme of modified interactive learning sessions which will discuss and support actual and recent issues in construction business (Marcus, 2004).

Obviously, project and/or organisational success are always influenced by good management (Anumba *et al.* 2005) and in contrast, poor management is the main cause of project failures



in any organisation (Ebrahimi-Mehrabani and Azmi-Mohamad, 2015). Although there are many challenges that seem out of control, and that might work against the effort of developing management SC, having a well-designed framework and guideline for developing management SC is one major lead to effective management SC development (Killian, 2010). Previous researches considered management development an important and strategic approach for organisations to continue to perform in this changing world (Noe *et al.* 2017; Omotayo, 2015; Dalakoura, 2010) and they have tried to demonstrate significant aspects of management development.

Popper and Lipchitz (1993) have over the years outlined several success factors as management development plans and programmes. The first factor they developed was individual competence being the degree of guarantee and assurances that an individual's performance will meet a specific expectation. The second factor is developing awareness of a method for the motivation of other people. The third factor is developing specific managerial skills. Klagge (1997) outlined the top major concerns of management development which are the core skills needed by line managers and supervisors in the construction organisations. These core priorities include: honesty, communicating, listening, being knowledgeable, trusting, supporting and motivating others. Renukappa, *et al.* (2015) posit that identifying and understanding the main drivers for developing managers through knowledge sharing, especially, with the aim of making it sustainable is a complex process. Arif *et al.* (2015) identified and singled out 'trust' as the most important knowledge sharing factor for any organisation. Arif *et al.* (2015) and Ebrahimi-Mehrabani and Azmi-Mohamad (2015) confirmed that information and knowledge sharing abilities are core needs to management development. From the position of Ebrahimi-Mehrabani and Azmi-Mohamad (2015) knowledge sharing plays an essential role in the development and improvement of both construction management SC. Arif *et al.* (2015) developed a knowledge sharing model to support sustainable construction management SC development.



**Figure 2.2: Arif et al. (2015) Model for Knowledge Sharing**

According to Arif et al. (2015)'s model, among the three factors required for a successful knowledge sharing, lack of trust was identified by Femi (2014) as one of the causes of conflict and poor commitment in the NCI. This was further discussed in sections 4.1.9 and 4.1.10 and recommendations were made in section 9.3.2.

Cacioppe (1998) developed a model for planning management SC development. The stages in his management SC development model are in the following order: (i) establish the culture for development (ii) clear the purpose of development (iii) classify suitable process (iv) select suppliers and plan the learning programmes (v) estimate the delivery of programmes (vi) integrate with human resource systems and (vii) assess the importance of the strategy and objectives to human resource systems.

Another approach to management SC development is combining a manager's development and management development in a new view of management and aligning it with the organisational strategy, goals, mission and vision (Arif et al. 2017; Omotayo, 2015; Dalakoura, 2010; Egbu, 2004). For more clarity, Day (2001) explained that the difference between manager's development and management development is that manager's development is the development of SC of the manager on an individual scale, which is the capacity building of the human capital; while management development relates to "expanding the collective capacity of organisational members to engage effectively in leadership roles and processes". Therefore, management development is related to SC and involves developing the required skills to broaden and guarantee performance. Forret (2006) adds that development on an individual level consists of SC, work experience, knowledge, education and training. Ebrahimi-Mehrabani and Azmi-Mohamad (2015) note that development of human capital is valued

because it significantly helps to improve the competences and effectiveness of both organisations and their projects. Developing the individual SC of managers and supervisors shape both the uniqueness and values of human capital and it is essential for executing competitive advantage (Arif *et al.* 2017).

Even though SC development and improvement is the focus of this study, it is the main part of the management development programmes of any organisation. Ebrahimi-Mehrabani and Azmi-Mohamad (2015) added that to effectively have management competences, fully developed and improved, the vigorous improvement of social investment must also be considered. By this, they refer to the interaction and integration of managers and the entire leadership of the organisation with their immediate environment and in tune with global trends. This is in support of McCallum and O'Connell's (2009) claim that successful organisations are organisations in which leaders not only have the skills, competences and knowledge to effectively act to produce successful outcomes but also to have relational competence with others, which sustains them.

Day (2001) outlined the three stages of social competence as relational, structural and cognitive. The relational stage refers to some basis for professional relationships in the work networks, such as trust. Structural stage is concerned mainly with social relations and networking. Cognitive stage is the last aspect of social competence, which refers to possessing resources for sharing visions. The philosophy of a shared common vision is an expression of the cognitive stage. SC, like communication, teamwork, motivation, negotiation, interpersonal strengths and public relations can help improve work relationships among managers which in turn results in increased social competence. Whetten and Cameron (2005) in the same vein explained that work generated social competence such as trust could develop and improve SC of an individual. The aim of this study is to develop and validate SC framework and a set of guidelines for the management of construction. It has been established by Ebrahimi-Mehrabani and Azmi-Mohamad (2015) that, with regards to SC, individual skills like education, training and experience can help increase the effectiveness of management development programmes and that social competence can form part of the programme, especially in knowledge sharing.

Campbell *et al.* (2003) divided development programme and its related content into two important points, one is “what to develop” and the other is “how to develop” it. They also summarized five overlapping classes of explicit events under each of these two important points. To respond to the question on “What to develop,” they proposed: interpersonal qualities, intrapersonal attributes, cognitive abilities, task-specific skills and communication skills. When responding to the question on “How to develop” it, they stated five categories: planned job assignments and experiences, mentoring and modelling, formal feedback and reflective self-evaluation, formal managerial training. The SC that Campbell *et al.* (2003) considered in their management development programmes and the ways to develop, train and improve on such SC are greatly examined in this study.

To engage in intrapersonal SC, helps people to develop “accurate and healthy self- models” which are a fundamental part of the development process as stated by Ebrahimi-Mehrabani and Azmi-Mohamad (2015). They also opine that an important issue in management development in construction highlights the development of interpersonal skills. These skills are needed in construction management to enable the motivation and inspiration of others to act (Arif *et al.* 2015). Included in these skills are several basic human relations skills like providing feedback, building teams, working collaboratively and listening empathetically. Another focus of management development is linked to the development of cognitive SC, which typically focuses on recognizing the problems, analyzing, and resolving them. Arif *et al.* (2015) singled out communication as another set of important skills. their conclusion, transformational leaders and managers impact their teams and followers by communicating with them effectively. These leaders illustrate to their followers the what inspires of their organisation’s vision, and demonstrate to them how they can attain the future vision successfully. Effective and successful communication through drumming home into them powerfully held values and ideas generates motivation and commitment in others (Campbell *et al.* 2003).

Mccauley and Van Velsor (2004) defined a management development theory as that in which management development is identified by the increase of a manager’s ability to be effective in management roles and processes to meet the project and/or organisational goals. This opinion of management development is supported by many other researchers such as Kotter

(1996), Ulrich (1996), Puryear (2000) and Cohen (2000). McCauley and Van Velsor (2004) went further to develop a model of development in which they clearly outlined three components of development. They stated that management development needs developmental experiences that create opportunities for learning. The second part of development is the manager's abilities and motivation for personal learning. The final component is the motivation and support such as rewards from the organisational developmental gains. They believe that these three components are needed for any meaningful development to take place.

Avolio and Luthans (2006) also presented authentic development model. Their model is similar in some ways to the model developed by McCauley and Van Velsor (2004). In their model, the manager's self-awareness is a main starting point. Avolio and Luthans explained that understanding the past and present experiences to bring the future to the present is an important competence, which managers and supervisors must have. Subsequently, managers and supervisors must get others to understand exactly what the future in the present looks like. Another important theme in their model is the provision of support and positive strengthening to their team members throughout the development process.

McCauley and Van Velsor (2004) also identified a set of SC that can be developed during a management development process. They outlined three categories including self-management competences, social competences and work facilitation skills. Self-management competences contained the skills such as identifying personal strength and weaknesses, managing conflicts/crisis, managing job stress, planning and control, learning, leadership values (integrity, honesty, personal initiative and drive, motivation and supervision of others, positive and optimistic outlook, and the delegation of responsibilities). Social competences were defined as the ability to negotiate, conduct meetings, build and maintain relationships, manage conflicts and crisis, build effective work teams, the ability to train others, communication skills and work facilitation skills, creative and innovate thinking, strategic planning and actions, initiating and managing change (Ebrahimi - Mehrabani and Azmi - Mohamad, 2015). These introduced management SC development needs, especially, social skills and competences outlined and discussed in this study (see section 7.8).

Applicable programmes for development of management SC were investigated by Fulmer and Conger in some successful organisations and their findings were adopted by the American Productivity and Quality Center (APQC). Fulmer and Conger are convinced that four major common factors were found by the APQC study and that these four factors are used by the best practice organisations in developmental programmes for engaging their current and future managers and supervisors. These four factors are job assignments/work experience; developmental activities like coaching, mentoring, job rotation; feedback processes and traditional educational programmes; some new approaches to management development like coursework, educational activities and action learning based on the web; and finally, using some computer-based technology to develop the competence for monitoring the developmental activities efficiently (Fulmer and Conger, 2004). These management development activities were considered in the training programme to help the management development in this study.

According to Degeling and Carr (2004), the foundations of management SC development, are socio-emotional, cognitive and behavioural skills. Managers' attributes would be supported by openness, self-awareness, trust, creativity, innovation and practical, social and general intelligence. Hence, to have effective long-term management practices, the future managers and supervisors of construction organisations need sufficient awareness to develop the six key areas of significance in management SC development which was presented by Leskiw and Singh (2007). These vital areas start the need for assessment and later the participants' selection process. Considering what Schetter (2003) said that successful organisations select their leaders from of management development participants. Thus, to effectively implement a management SC development programme, having the right structure and participation is very essential.

Important commitments of successful organisations are the appraisal of the effectiveness of their effort in management development. One of the objectives of this study is to evaluate the effectiveness of the outcomes of management SC development. Numerous construction organisations are of the belief that management SC development cannot be numerically measured because it is not valuable. In fact, it is not possible to measure what cannot be valued. But perhaps there is a way management SC development can be valued and be considered as an exception. According to Ready and Conger (2007), measuring the effectiveness of management SC development can be done by asking the correct questions

about the programme of management SC development. Leskiw and Singh (2007) added that the second step is the reward of success and the improvement of deficiencies experienced before the management SC development.

Management SC development is based on the experience-based approach as suggested by Thomas and Cheese (2005). They further introduced three components of this approach as life experience, job experience and specific skill and competence (SC) development to show a more complete way to do management SC development. Experience-based management SC development helps employees to develop their experience to gain suitable training for effective management and for them to grow and become managers and leaders who know how to lead and manage in the future (Thomas and Cheese, 2005). It is the opportunities and management developmental needs of individuals to effectively perform at every stage of their careers, this is responsible for the demand on skills and competences development. Hence Ebrahimi-Mehrabani and Azmi-Mohamad (2015) concluded that training should be considered as a part of the study of management SC development which can also be used to evaluate management SC development programmes. Another important factor is the organisation's ever changing needs, which occur in complex and unstable environments. There exist three important procedures in experience-based management SC development. They are: preparing, developing and preserving management SC. These procedures are used to produce these SC, which are essential for managers at every level (Thomas and Cheese, 2005).

Buus (2005) introduced what he called 'best practices in management SC development'. According to the author, these practices consist of linking management SC development to a strategy, ensuring that there is actual feedback through a programme, creating the opportunity for learning and developing experts who will act on the information gathered, adapt action learning based on the existing challenges in organisations and create the opportunity for participants to combine their routine work with professional developmental activities.

Weiss and Molinaro (2006) presented an integrated-solution approach to management development. This approach comprises eight steps which illustrate a strategic and synergistic way to develop such needed management SC in organisations to guarantee that sustainability is required in a competitive construction environment. While most developmental options

focus on increasing competitive advantage in an organisation, this approach is more strategic. The focus of this process is to effectively implement a complete plan for management SC development and making this plan more efficient. This approach also implements development alternative through good behaviour which can add more value to one another. Also, when the approach takes an enduring look on management SC development, it is then more synergic and sustainable.

The eight (8) steps of integrated-solution approach are:

- (1) Developing a comprehensive strategy for integrated management SC development,
- (2) Establishing a connection between management SC development and the prevailing challenges in an organisation's work environment,
- (3) Creating the background of development, using the management story becomes necessary.
- (4) The evaluation of the international enterprise-wide requirements, to enable it fit with local individual needs.
- (5) Adopting growing design and implementation.
- (6) Ensuring collaboration between the organisational culture and development options.
- (7) Considering the significant ticks of the management lifecycle.
- (8) Applying a mixed approach which considers course work, coaching, job rotation, mentoring, and other extensive strategic approaches which can enhance and expand the opportunity for experiences (Weiss and Molinaro, 2006).

Block and Manning (2007) introduced another approach known as the management life cycle. They highlighted the main elements that are required to make an effective management development scheme; and their approach, is a six-stage plan. Identification of management needs is the first (1) stage. The second (2) stage is designing the content of learning and training processes which specify the skills, competences and knowledge gaps. The third (3) stage is concerned with action learning. Workplace support like coaching and mentoring, which will ensure that developing managers have direction and feedback process is the fourth (4) stage. In stage (5), it is emphasized that it is necessary to establish some appropriate strategies to recognize the developing manager's commitment. The final stage (6) is to ensure that the process of the manager's development aligns with the organisation's strategic goals and policies. The best practice in management SC development will be seen through the integration of all these six steps in the organisation.



Developing the management SC through teaching is the other approach to management development. Special workshops and classes on management SC development subjects are considered in management training by Allen and Hartman (2008). They also suggested four themes in management development. These themes are conceptual understanding, personal growth, skill building and feedback. Indication of personal values, desires and attitudes are all included in the personal growth experience. The focus of conceptual understanding is improving the skills, knowledge and competences of each manager during interaction of the management development topics, which usually studies the variety of management theories. To learn the certain weaknesses and powers in each variable of SC for managing construction projects, managers need to get facts from feedback. Developing the SC requires that management competences be launched into real orderly processes to guarantee generally successful performance (Allen and Hartman, 2008). Hence, knowledge sharing is a good process of developing and improving management SC. It is one of the things discussed in this study.

To design SC for developing management programme as stated by Killian (2010), there is need to consider the five principles stated below. To form these principles, five questions about programme design need to be answered, and they are: why, what, when, who and how. Killian's viewpoints formed the structuring of this research study to develop and validate the framework and set of guidelines for developing SC of managers and supervisors. Killian (2010) stated that it first needed to identify "WHY" we intend to have a management development programme and what would be the likely achievement. This simply means that the first and important step is to identify the aim. Management SC development plans are most effective when they target some specific needs of the organisation. Almost all the events and activities in any organisation are influenced by the management. So, developing the managers' SC is a tool to many possible and successful ends (Ebrahimi-Mehrabani and Azmi-Mohamad, 2015). This study also considers the effectiveness of the outcomes of the management development programme.

According to Killian (2010), the explanation of managers' belief, the best way to meet challenges in any organisations is investment in management SC development. After the clarification of the aim, the next step is "WHO" - identification and selection of the target group of participants in the management development programme. These are people who have the greatest impact for the purpose and achievement of the programme. Clarifying and

understanding “WHAT” knowledge, skills and competences the participants are expected to learn and what they are expected to do with the knowledge is the next step which drives the success of management development programmes. Ebrahimi-Mehrabani and Azmi-Mohamad (2015) outlined that one of the helpful processes in this step is to identify, select and evaluate the techniques and models which clarify what effective managers and supervisors do. Main management SC considered in this study were adopted from the existing literature (Zhang *et al.* 2013). The most effective way of developing and improving these SC were all considered in designing and administering the questionnaire and conducting the interviews.

Subsequently, Ebrahimi-Mehrabani and Azmi-Mohamad (2015) insisted that there is also need to adopt an accurate approach to help managers and supervisors learn and develop these skills. Any chosen approach needs to be aligned with the organisation’s aims and objectives towards construction management (Bolden, 2016). And finally, there is a need to make timely decisions and schedule activities (Killian, 2010) to fit into the desires of the participants in the programme. Successful management development process is also concerned with the aptitude needed to encourage managers and supervisors in a way that enables them to internalize the learning experiences, with the main aim of transferring their knowledge, skills and competences in the workplace to others (Morrison *et al.* 2003). As management SC development is necessary for today’s construction management, the plan for development and improvement of the management SC is taken very seriously by successful leaders and organisations Serrat (2017). Having the knowledge and understanding of the SC for managing construction projects enables managers and supervisors to attain more effective performance (Arif *et al.* 2017).

Nevertheless, almost all types of management development programmes have been based on either one or more management models, theories or approaches (Kerzner and Kerzner, 2017). Day and O’Connor (2003) stated that one or some management theories were often used to formulate the management development programmes as their major educational aim. These theories are sets of methodically and systematic interconnected concepts, perceptions, suggestions and definitions that are developed to describe and forecast phenomena (Cooper and Schindler, 2008).

Successful development of management SC requires the ability of managers and supervisors to engage in management roles and responsibilities effectively (Dalakoura, 2010). Various

management theories supported different concepts of management development. For instance, trait theory was more concerned with lifelong experiences of learning, while behavioural, transformational, situational and other theories of management provide general skills, specific, behaviour or attribute development (Leonard, 2003).

Some researchers accept as true that the skills and characteristics which are provided by transformational management are those that need to be developed in management development programmes (Hymes, 2008; Moniz, 2008). Researchers like Carter (2007), Ryan (2007), Davis (2007), Warner (1997) developed transformational management development models by considering the skills, competences and attributes of transformational managers and supervisors as noted in Kouzes and Posner's (2002) model.

Kouzes and Posner (2002) explained that management is a set of behaviours and practices, and not a position. These practices bring about a set of guidelines for the organisation's managers to achieve set goals or to accurately perform their works, which include "challenging the process, enabling others to act, modelling the way, inspiration of a shared vision, and encouraging the heart."

Bass (1990) added that very effective managers would exhibit two types of behaviours (transformational and transactional management). The characteristics of transformational and transactional management were developed by Avolio and Bass (2004). These include: "idealized influence (attributed), individualized consideration, idealized influence (behaviours), inspirational motivation, intellectual stimulation, management-by-exception (active), contingent reward, and management-by-exception (passive).

Additionally, Greenleaf *et al.* (2003) considered what is called servant management theory as one of the best theories for management development. But for this study, the word 'servant' will be replaced with 'trainee'. To buttress the point, Goodly (2008) put forward the developing of trainee management characteristics and skills in his management development programme. This is also known as mentoring. The positive characteristics of trainee management are summarized in the Bartholomew (2006), Goodly (2008), and Page and Wong (2000) researches. These are: empowering others, authentic management characteristics, participatory management characteristics, inspiration of management characteristics, visionary management characteristics and courageous management characteristics.

### 2.2.6 Improving Skills and Competences (SC) of Managers

As the industry grows and changes, project managers are confronted by new issues and a new breed of challenges, they must assume roles that have not traditionally been part of their initial responsibility (Shamir and Eilam-Shamir, 2018; Kerzner and Kerzner, 2017). Harrison and Lock (2017) acknowledged the ever-changing roles of construction project managers and reasoned that they must complement their traditional roles with other non-engineering knowledge and skills to meet the demand of today's managerial professionalism. Today's project manager accomplishes not only traditional roles of their project management responsibilities but also must manage the project in the most efficient and effective manner, improving their competences with respect to sustainability over today's threats (Arif *et al.* 2017; Harrison and Lock, 2017; Hwang and Ng, 2012).

Sandberg (2000) acknowledged the need for continuous improvement of SC when he stated that the development of competences is more likely to progress as a chain of changes in conceiving and delivering different work situations rather than as a single, major change. To him, understanding what constitutes competence is most crucial to effectively managing competence development and improvement on any project. Equally, the wide range of tasks required on a project can vary considerably, meaning the skills and expertise required change from project to project as well as on a day-to-day basis (Noe *et al.* 2017; Kerzner and Kerzner, 2017; Wilkinson *et al.* 2012; Dainty *et al.* 2007).

After some studies that highlighted critical managerial skills (Crawford, 2000; Belassi and Tukel, 1996; Egbu, 1994), several studies (Hillson, 2017; Meng and Boyd, 2017; Tabassi *et al.* 2016; Hwang and Ng, 2012) confirm that a competent project manager is vital to project success. In a report, Ahadzie (2007) also confirmed the construction industry's growing awareness of the connection between construction project management competences and achieving project success. Successful construction firms now focus on ensuring that managers acquire the core competences required to stay successful in the performance of their assignments. According to Müller and Turner (2007) the project manager has direct influence on project success. Because of these previous studies, it is very clear that managers and supervisors play important roles in defining the success of a project. A construction organisation can maximize the possibility of consistently attaining project success by recruiting, developing, motivating and retaining competent managers and supervisors. Hwang and Ng (2012) added that apart from the professional trainings and development, “The

*project manager must first possess knowledge of the technical aspects of the industry to an extent that he or she understands the product and service being built and delivered”.*

The project manager and his or her site managers or supervisors must know the technicalities and operational procedures of every stage of the project (Hwang and Ng, 2012). Modern construction project management practice therefore demands additional general and management knowledge, coupled with skills that extend to and beyond the technical aspects of traditional engineering construction areas (Nicholas and Steyn, 2017; Ramazani and Jergeas, 2015). Hardison and his colleagues cited the study done by Finneran *et al.* (2012) during the London 2012 Olympics construction projects, which revealed that supervisor’s competences enhanced effective site practices and is key to a successful impact in the construction industry (Hardison *et al.* 2014).

### **2.2.7 The Development Challenges**

Organisations have experienced severe change since the new millennium (Ebrahimi-Mehrabani and Azmi-Mohamad, 2015) and this was worsened by the great global economic recession (Imbs, 2010). Therefore, management styles must change as the old ways of leading in the industry would most likely be unsuitable (Lynham and Chermack, 2006). The leadership of every organisation increasingly express the crucial need to focus on SC development and improvement, but the fact is that only few of them consider developing the SC of managers and supervisors as part of their main business strategy. A research by Giber *et al.* (2009) concluded that while most organisations understood and underscored the need to grow managers and leaders, unfortunately, only less than fifty percent (50%) of them really take systematic actions to develop or improve the SC of their leadership. This sums up the fact that these organisations are not ready to embrace the changing atmospheres of the construction industry.

Construction management development programmes are often disjointed and lack an overall approach that is embedded successfully, which is essential for the effective development (Weiss and Molinaro, 2005). This shambolic practice constitutes a major challenge in the development and improvement of SC of managers. There is need, for organisations that want to improve, to move forward and lead in the industry at this challenging and competitive time, in order to have alternative leaders (Walker, 2015). These are managers and supervisors who are trained to rise to the numerous challenges.

Day and O'Connor (2003) found that there is a complete lack of fundamental practical and experiential evidence in the approach in SC development practices. They also mentioned the need to encourage continuous technical and demonstrative research in management SC development (Ebrahimi-Mehrabani and Azmi-Mohamad, 2015). In many organisations, to replace the leadership position, succession plan is the applied policy. This strategy has maintained the age long and existing challenge, which is the lack of skills, knowledge, competences and the perception of developing or improving the specific skill and competence needs of these leaders (Holt, 2011; Collins *et al.* 2000).

According to Ebrahimi-Mehrabani and Azmi-Mohamad (2015), one of the most significant challenges of many organisations in the construction industry is how to create a successful management development programme. They stated further that before creating a management development programme, the management development needs perceived by the current managers and supervisors for the future roles and responsibilities need to be understood. To develop an effective management development programme and build the future skilled and competent managers and supervisors, there is a need for a combination of all needed and important construction management SC. Identifying the necessary SC is one of the challenges of management SC development programmes (Holt, 2011). On the other hand, another important requirement that needs to be seriously considered in management SC development is to understand; to what extent management SC development has an impact on project performance. This is one of the objectives of this study.

According to Mujis (2011), it is still not yet proven how much continuous professional development influences managers and supervisors' performance. Poor organisational effectiveness towards organisational vision, which is the result of deficient management skills, is one of the main problems that organisations are faced with. Hence, effective management development programme, which can lead all managers, supervisors and subordinates toward the goals and vision of the organisation, is required (Wright, 2007).

Furthermore, Renukappa, *et al.* (2015) offered that before any organisation should embark on a skills and knowledge management programme, there is need for decision makers to first understand the aim they intend to achieve with the programme and identify what value it would add to their organisation especially in the context of sustainability. For a better

appreciation of what to develop, an understanding of the responsibilities of construction managers is important for this study.

#### **2.2.8. Roles and Responsibilities between Managers and Supervisors**

There exist many articles about managers and supervisors, however for a better understanding of the definition of the two in the context of this study, we will focus on the roles and responsibilities of construction manager and supervisor.

1. Supervisors check that the agreed work process has been systematically carried out as well as recorded (Smith, 2010).
2. The consideration and support of supervisors is a strong determinant of job satisfaction in a wide range of work settings (Griffin *et al.* 2001).
3. Supervisors play very important role in structuring the work environment and providing information feedback to the management. And because of this role, supervisors' behaviours influence the reaction of their team (Griffin *et al.* 2001).
4. It is the traditional responsibility of the supervisors to develop roles and set targets for their team members (Griffin *et al.* 2001).
5. They also model teamwork, set and implement ground rules for team members' operations (Griffin *et al.* 2001).
6. Supervisors also identify change and communicate the salient and detailed information about the change to the organisation (Griffin *et al.* 2001).
7. Increased job performance is attainable when managers and supervisors encourage and support SC development among the workforce. Also, supervisors play an important role in the motivation of the workforce (Griffin *et al.* 2001).
8. One of the most important but complex roles undertaken by managers is the management of construction risk. A good risk management must be done from the onset of the project (Serpella *et al.* 2014).
9. The construction manager's basic business responsibility is to facilitate the use of the construction project management delivery system on the construction project he/she is handling (Izatul *et al.* 2013).
10. The manager is held accountable for the delivery of most basic project outputs, as well as meeting the project's constraints (Zwikael, 2011).

11. The construction managers plan, initiate, execute, monitor and complete a whole construction project or just part of a project (Izatul *et al.* 2013).
12. The construction managers monitor and control the smooth progress of the project.
13. One of the most important tasks of a successful construction manager is the ability to effectively handle unexpected situations (Izatul *et al.* 2013; Isa 2007).
14. Another important role of the construction manager is to coordinate the tasks and activities within the project management process with the various teams to ensure that the right tasks are executed at the right time (Izatul *et al.* 2013; Clements and Gido, 2012).
15. It is managers' responsibility to ensure that all who work with them on the project possesses the right skills, knowledge, resources and competences to accomplish the set targets (Sutton, 2011; Izatul *et al.* 2013).
16. The manager sets realistic and attainable goals, controls the construction project, and ensures the project succeeds within the estimated budget and scheduled timeline. They also get involved in the administration, advising, budgeting, consulting, coordinating, documentation, evaluation, reporting and scheduling (Shaker, 2007).

That construction managers are “one of the vital requirements” for project success is a popular view, but Pheng and Chuan (2006) insist that arguably, they are the “most significant requirements” as people are responsible for formulating the processes and systems that deliver projects.

#### **2.2.9. The Skills Necessary for Management and Supervision**

The traditional or “hard skills” of managers (Ingason and Jónasson, 2009) or entry level skills (Turner and Muller, 2003), or threshold abilities and competences (Boyatzis, 1982), are just no longer enough for managing today's projects. Sole reliance on them is one of the major characteristics that distinguish between average and excellent managers and supervisors. These traditional skills do not necessarily lead to an improved or a higher performance of construction projects (Rui *et al.* 2015; Walker, 2015). Several studies (Boyatzis, 1982; Egbu, 1994; Egbu, 1999; Crawford, 2000; Egbu, 2004; Boyatzis, 2008; Hersey and Law, 2009; Chipulu *et al.* 2013; Young and Conboy, 2013) on competences have advanced the knowledge of project management theory. They are nevertheless on their own a guarantee that a manager or supervisor can become competent (Skulmoski and Hartman, 2010).

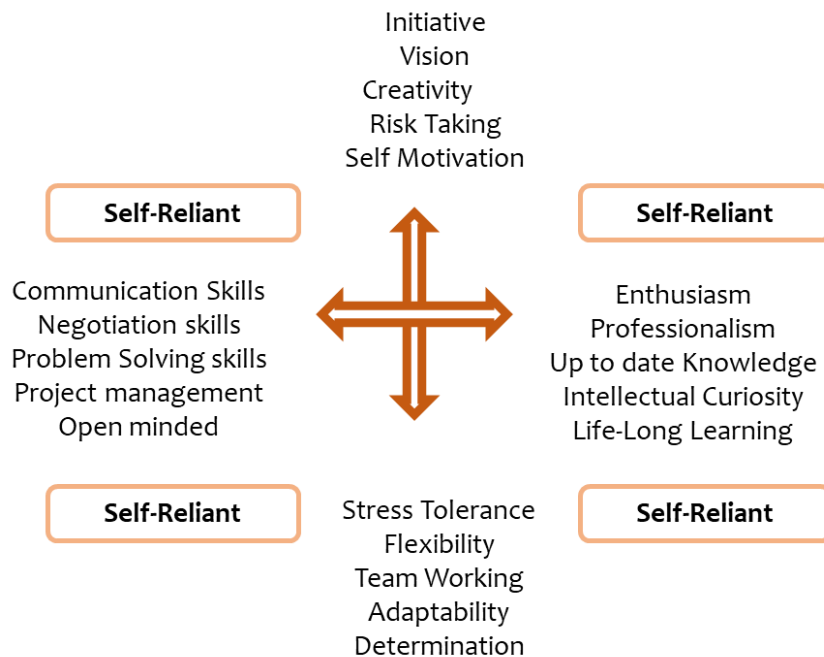


To successfully and professionally manage construction projects in today's world, a project manager needs to possess sets of required skills and knowledge (Naveed *et al.* 2017). Extensive research studies have documented managerial and supervisory skills crucial for efficient project management and performance. (Hiltrop, 1998, Weiss, 1996, Zhanga *et al.* 2013) listed the new skills and competences that managers and supervisors will need in the future. All skills listed are also found in Egbu (1994)'s construction management SC. Chen and Partington (2006) with the use of phenomenographic research approach, conceived that competences for a construction project manager include: planning and controlling, organizing and coordinating, managing potential problems and predicting. On emotional Intelligence (EI), Mount's (2005) study found that the seven emotional competences (self-confidence, teamwork, influence, organisational awareness, empathy, adaptability, and achievement motivation) accounts for about 70% of the skill set that are considered most significant for managers' success in running projects (Zhanga *et al.* 2013).



**Fig 2.3 Components of the social competences cluster, from Boyatzis (2004).**

## 2.2.10 Managers Skills and Competences Model



**Fig 2.4 Managers Skills and Competence (SC) Model (Kiechell, 1994).**

From Kiechell (1994) model, construction manager is expected to be an expert. This means s/he is to connect goals and structures with the central core servicing. S/he must continuously engage in self-development and learning to keep pace with change, adapt to the evolving needs of construction in the industry and stay in touch with the larger world and stakeholders. As a networker, successful managers would be very connected to a wide range of diverse experts, professional bodies, interest groups, colleagues and other practitioners. This should be their source of abundant information and knowledge. Because of possible psychological imbalance, there is a pressing need for managers to be self-reliant. To manage others, managers must first demonstrate competence in managing themselves. Of course, as we now operate in a turbulent and uncertain environment, what people need, both for their own and organisation's sake, is the ability to live and succeed with high levels of uncertainty, to bend and not be broken, and then to bounce back quickly from failure and disappointment. Managers should be like that - Resilient. Resilient people are expected to be in control, committed and challenged. Increasingly, for leadership, managers should rely on their teams of co-workers and foster a mutually trusting relationship with them to perform to quality

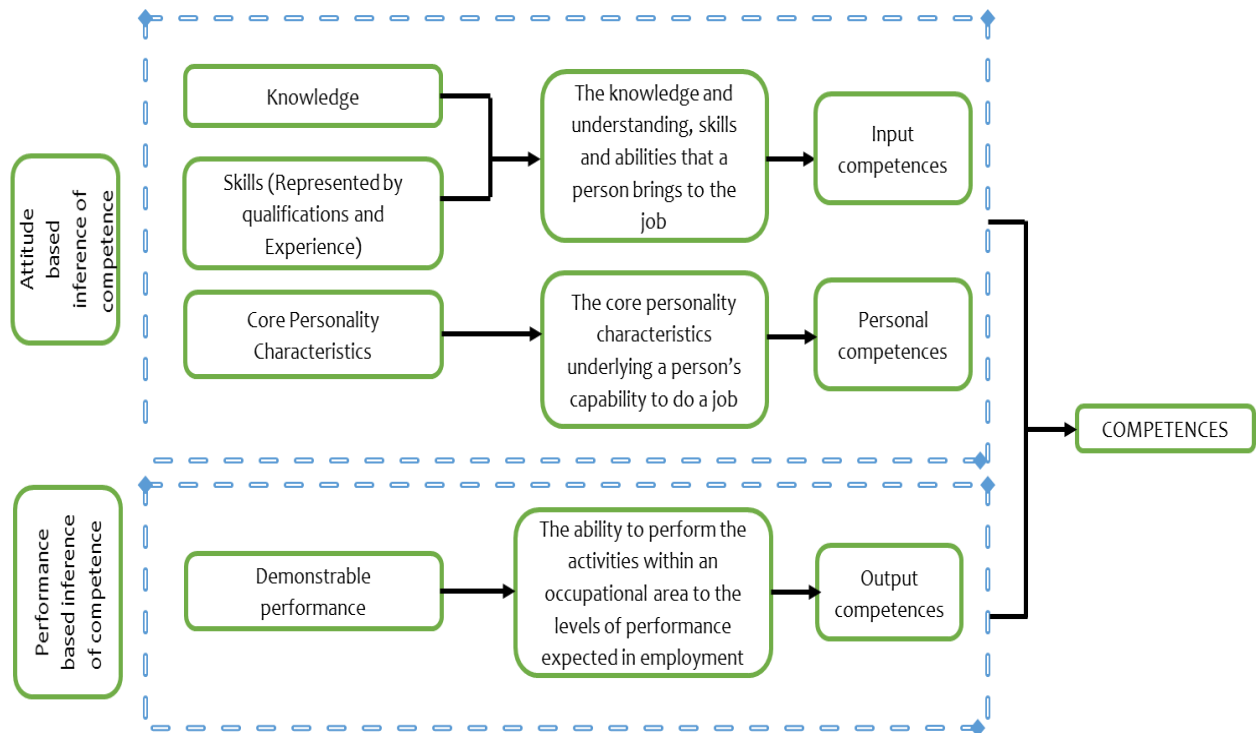
assured standards and that will avail little or no support and supervision of work. For this to happen, a special kind of leadership is required, where leaders mobilize commitment to enable performance, provide social and technical support, and promote effective teamwork and facilitate change.

#### **2.2.11. Developing Framework and Guidelines for Skills and Competences Development**

The main aim and objective of this study is to develop and validate a SC development framework and a set of guidelines for the development and improvement of SC of supervisors and managers, for carrying out successful construction projects in Nigeria. The process of development in this context means “towards more advancement”, while improvement is also a process of making the “advanced to become better and fit for the next purpose”.

As Detsimas *et al.* (2016) stated, any investment in workforce that allows employees to continuously develop and upgrade their SC is critical for the enduring and sustainable success of any construction industry. The employees’2

competence in performing these skills and the ability of the organisation to deploy them is a significant factor in determining the success of the organisation (Matsumoto *et al.* 2005). It is for this reason, organisations must develop a range of techniques to effectively develop and better manage the necessary skill set to perform the complex tasks that construction projects entail in Nigeria (Matsumoto *et al.* 2005). Purpose of an SC development framework and guidelines is to provide both an individual and organisations with guidance on assessing, planning and managing the professional development of a construction manager (Cartwright and Yinger, 2007).



**Fig. 2.5. Crawford (2005) Integrated model of SC identifying components of the overall construct.**

Another important purpose of the SC development framework and guidelines is to provide a guide for the assessment of a supervisor, site and project manager competences. It is aimed for a manager who:

- has the necessary practical construction management knowledge, skills and experience represented.
- has demonstrated basic education and recently graduated from an accredited construction related programme.
- can provide evidence of performance and personal competences identified in the framework
- has been a construction manager for five years, managing medium-sized or larger projects, with at least 20 personnel, and who may be under the guidance and direction of an experienced senior project manager (Cartwright and Yinger, 2007).

To achieve this, according to the empirical evidence of Govender and Bisschoff (2007), research and training providers need to be empowered in general to efficiently deliver high quality and job relevant skills based on global best practice and within acceptable local

culture. With a solid, effective and efficient SC development framework, developed through analysing the findings of this research and further validated through another round of questionnaires given to some practitioners in the industry, SC development is more efficient for training providers in the NCI.

#### **2.2.12. A PILOT FRAMEWORK**

A pilot framework was developed through the following steps/stages of this study as shown in Fig 2.15:

1. Conduct a thorough review of literature, discussing the nature and significance of the Nigerian construction industry (NCI). Define and explain the meaning of SC. Outline construction SC development, strategies and approaches. Discuss the roles and responsibilities between managers and supervisors. And the skills necessary for management and supervision. Illustrate manager's SC model.
2. With primary data obtained through a robust review of literature in stage one, engage practitioners to participate in the study; elicit the views of practitioners on the current nature of the NCI in the area of SC development, strategies, outcomes. Conduct a questionnaires survey of not less than one hundred and fifty-five participants. Conduct a semi-structured interview with not less than thirty participants. This will fill the gaps in the literature. At the same time, it would allow for a better understanding of the key SC that managers and supervisors need and bring to their work, together with how they are developed and improved. Ensure that the proposed framework is validated by at least ten participants.
3. The combination of information and data about SC development, strategies and outcomes, gathered from the review of literature and from participating Nigerian construction practitioners, allow for a robust discussion on the challenges, effects, impact, approaches and success factors. Sequel to this discussion and analysis, developed framework and set of guidelines and further validate the framework. Outline all the findings and conclusions of this research and make recommendations for the industry and the academic.

Figure 2.15 shows a pilot framework which demonstrates the skeletal structure of writing this PhD thesis, this structure of thesis, forms the model for the drafting of the framework for development of construction management SC which is the aim of this study.

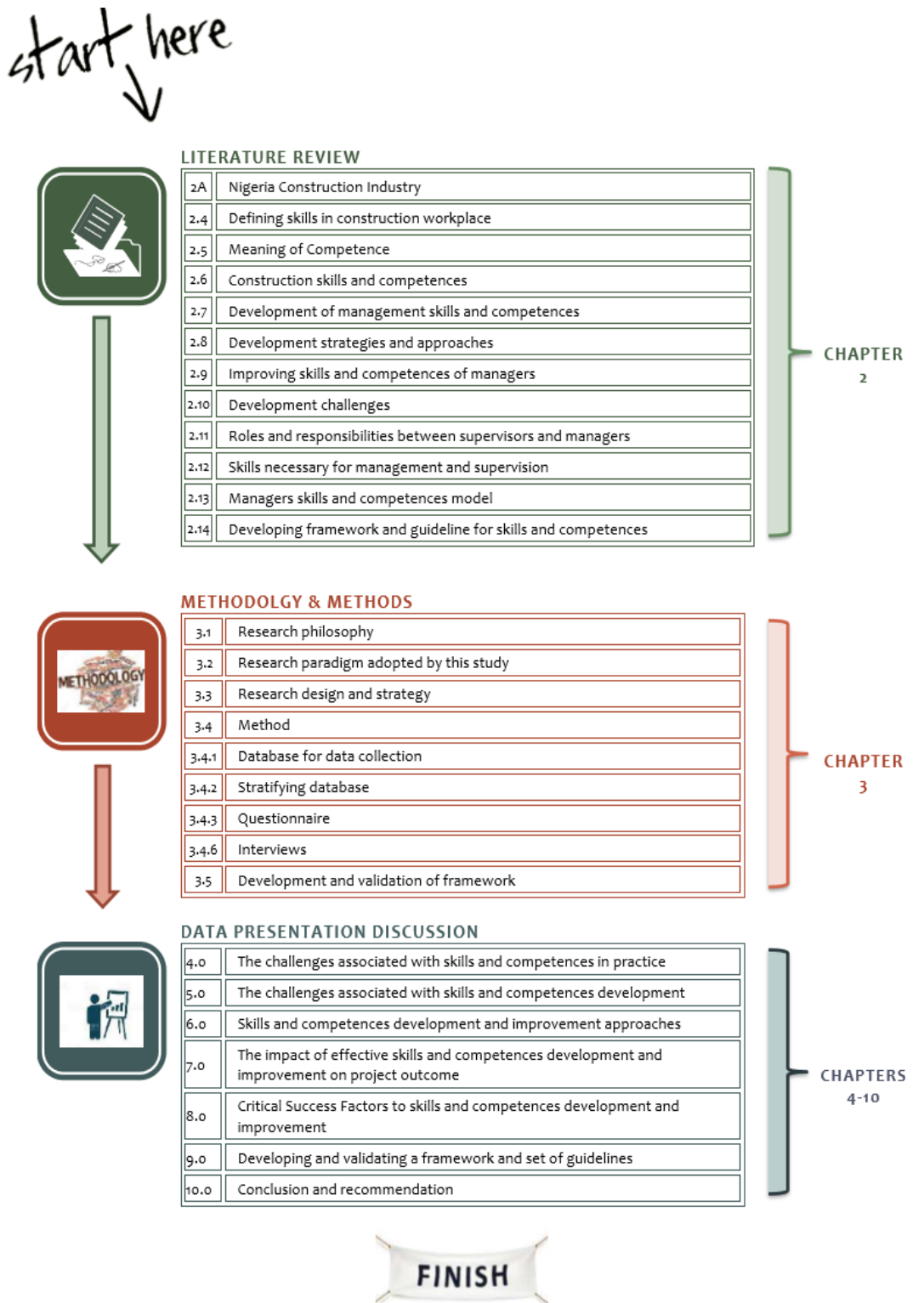


Fig.2.6 Structure of this PhD thesis

### 2.3. Summary

There exist several works on skills, competences and knowledge management in construction management. But the challenge is that most of the existing works focus on organisations and not on the projects. According to Egbu and Ochieng (2015), most of the existing research and publications in the area of skills and knowledge management in construction focus more on an organisational perspective, comparatively little emphasis has been given to the application of skills and knowledge management in the complexity of construction projects.

This explains one of the reasons for this research study. The thorough review of literatures which defined skills as one of the cardinals of human capitals needed for the successful delivery of construction projects. It is an acquired or learned ability to execute a task that has pre-determined results, mostly, with budgeted resources and timeframe. In other words, skills directly affect performances. While simply put, competence is the abilities and the ability of an employee to do a job well. Competence is knowledge, skills and attitude an individual possesses that enables them perform to a prescribed standard. It has been established that competence is a 'behavioural attitude' of managers, which enables the effective application of the acquired skills to achieve the desired performance.

This chapter has reviewed what constitutes SC in construction management and listed them in Section 2.2.3 and 2.2.9. Researches has shown that there is until now no formal and harmonious framework and guidelines for developing SC in the NCI. But one of the major ways of developing these SC includes assessing and reviewing the present strategy to ensure they align with the overall goals, objectives and mission of the project organisation. Another is to first identify skills shortages and its causes and how it finally makes a worker incompetent. Vital is developing effective communication with managers whose SC are to be developed. In addition, more knowledge, understanding, education and training of construction personnel are needed, among many other approaches. It is also very necessary to apply review measures later, to evaluate and revise them in the light of the results achieved.

Core roles and responsibilities of managers and supervisors were evaluated and outlined for more understanding of what is expected of them and how their performances can be improved upon. This chapter briefly introduced how the framework and guidelines was developed. This looks at the importance and purpose of the skills and competence

development framework and guidelines, which is primarily to offer a guide for the assessment of managers.

To address the project focused agenda of this research, questions were designed to draw out project related responses instead of organisation related responses. These were suitably discussed in the next chapter.



## Chapter 3

### Research Philosophy and Methods

#### 3.0 Introduction

In this chapter, the research design and methodology deployed to explore the research aim, objectives and questions outlined in Chapter 1 (Sections 1.2 and 1.3) were presented. For meaningful results to be achieved, the complex task of investigating the development of SC in construction management requires a methodical approach to data gathering and analysis. The research methodology adopted in this research is outlined in this chapter. The major problems encountered by the researcher at the outset was lack of referenceable resources – published literature and research findings – that is, pertaining to SC development in Nigerian construction management sector.

This study employed a review of literature and administered questionnaire for pilot, main and validating survey, semi-structured interviews. This research also focused on developing a framework and set of guidelines for the development of SC. Finally, the chapter justifies the methods adopted and explains the exact methods of data collection and analysis applied.

#### 3.1. Research Philosophy

For every research, according to Holden and Lynch (2004), there exist questions that require important consideration from the researcher such as “What to research” and “How to conduct this research.” Central to answering these questions is “Why research?” The review of existing literature has enabled me to appreciate that choosing a research methodology, that is, how to conduct my research, is deeper than just the practicalities but something more far-reaching, which is the philosophical solution that justifies the “Why research”.

Philosophy of Science is an area of study that explains the exact way in which epistemologies and ontologies influence the process and structure of social research (Machamer, 2004). Easterby-Smith *et al.* (2008) listed three reasons for understanding of philosophical issues: 1. it help to clarify research design. (Research design deals with the methods by which data is collected and analysed). 2. The knowledge of philosophy helps to recognize the workability of designs 3. Having a knowledge of philosophy also helps to identify and, perhaps, create

designs that may be outside the researcher's previous experience. According to Holden and Lynch (2004), having knowledge of philosophy requires the researcher to make some core assumptions regarding two dimensions to the research: the nature of science and the nature of the society.

There are some parameters that describe beliefs, assumptions, perceptions, the nature of truth and reality and the knowledge of that reality. They have a strong ability to influence the process in which the research is undertaken, from the beginning of the design through the conclusions. The discussion and understanding of these aspects of the research which intends to approach harmony with nature and aim of the research and to ensure that researcher's biases are identified, understood, exposed and minimized is known as the Research Philosophy (Kothari, 2004). Being a practicing construction manager in Nigeria has bestowed on the researcher both experience and ideas of how SC for construction managers should be developed and improved upon. These, to a degree, may have caused the research to still lean towards his beliefs and impede on his ability to use a good methodology and, hence, compromise the quality of this study. However, another important fact, the research noted is that his philosophical assumptions might significantly influence how this research is carried out. It is important to note that the philosophical understanding the researcher chose helped increase his confidence in the appropriateness of the methodology, amongst other things (Holden and Lynch, 2003).

### **3.2. Research Paradigm and the Research Paradigm Adopted by this Study**

This research aims to develop and validate a framework and set of guidelines for the development and improvement of SC of managers and supervisors for carrying out successful construction projects in Nigeria. To achieve the aim and objectives of a study, there are several methodologies open to a researcher for the collection of data. As presented by Gittins (1997), choosing the appropriate research methodology is important, as it determines the research methods to be adopted in a research.

According to Remenyi *et al.* (1998), there are two main factors to be considered when choosing an appropriate research methodology, these are: (i) The specific research questions, and ii) the topic to be researched. Reviewing the research methods, Jobber (1991) argued that

it is wrong to say that one method is superior in abstract terms, as every method has its own strengths and limitations. Jenkins (1985) validated this view by saying that for any research project, the key selection for the best methodology is recognizing all available methodologies and understanding their relative strengths and weaknesses. There is also room for the use of two or more approaches, a position Collis and Hussey (2003) supported when they stated that once a researcher has determined the choice of the paradigm in their study, it is okay in research, to use a mixture of approaches. They further argued that what is essential is how good researchers pull the data together to make sense of the study. It has been greatly argued that a combination of more than one research procedure is more helpful than one. Since the different methods have their advantages and disadvantages, therefore, combining the procedures can be harmonizing to the phenomenon studied (Saunders *et al.* 2007; Bell and Bryman, 2007; Weston *et al.* 2001; Perry, 1998). For this study, the researcher has chosen to lean towards positivism (quantitative methodology) as the most appropriate research philosophy. This research seeks to improve the managerial and supervisory SC required in managing construction projects.

There are four basic types of triangulation that contribute to enhancing research as identified by Easterby-Smith *et al.* (1991), they are data triangulation, investigator or analyst triangulation, method triangulation and theoretical triangulation. According to Denzin (1978), triangulation helps researchers gain detailed insights and results, which assist them in making inferences and drawing conclusions. Triangulation is an appropriate research strategy for extending theory scope in construction management research (Love, 2002). Mixed method research approach is defined by Johnson and Onwuegbuzie (2004) as the class of research where the researcher combines or mixes qualitative and quantitative methodologies in a single study. The table below explains the differences between both methodologies.

CHARACTERISTICS	QUALITATIVE METHODOLOGY	QUANTITATIVE METHODOLOGY
<b>Definition</b>	The non-numerical examination and interpretation of observations for discovering underlying meanings and patterns of relationship	The numerical representation and manipulation of observations for describing and explaining the phenomena that those observations reflect.
<b>Main philosophical assumptions</b>	Constructivist	Post-positivist
<b>Nature of research</b>	Provides information as to “which beans are worth counting”	"Count the beans"
<b>Type of reasoning</b>	Inductive/a theory building Process <ul style="list-style-type: none"> <li>• Subjective</li> <li>• Meaning</li> </ul>	Deductive/a theory testing process <ul style="list-style-type: none"> <li>• Objective</li> <li>• Causation</li> </ul>
<b>Strategies of enquiry</b>	<ul style="list-style-type: none"> <li>• Phenomenology</li> <li>• Grounded theory</li> <li>• Ethnography</li> <li>• Case study</li> <li>• Narrative</li> </ul>	<ul style="list-style-type: none"> <li>• Surveys</li> <li>• Experiments</li> </ul>
<b>Method used for data collection</b>	<ul style="list-style-type: none"> <li>• Open-ended questions</li> <li>• Emerging approaches</li> <li>• Text or image data</li> </ul>	<ul style="list-style-type: none"> <li>• Closed-ended questions</li> <li>• Predetermined approaches</li> <li>• Numeric data</li> </ul>
<b>Sample size</b>	Sample size is not a concern; seeks information rich sample	Should be more than 30 at least
<b>Nature of problem</b>	<ul style="list-style-type: none"> <li>• Exploratory research</li> <li>• Context important</li> </ul>	<ul style="list-style-type: none"> <li>• Explanatory research</li> <li>• Body of literature exists</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Variables unknown</li> <li>• May lack theory base for study</li> <li>• Can generate new theories</li> <li>• In-depth examination of phenomena</li> <li>• Not limited to rigidly definable variables</li> <li>• Examines complex questions that can be impossible with quantitative methods</li> <li>• Deals with value-laden questions</li> <li>• Explores new areas of research</li> </ul>	<ul style="list-style-type: none"> <li>• Know variables</li> <li>• Existing theories</li> <li>• Aggregate data from large samples</li> <li>• Compared to qualitative methods, can be easily generalized</li> <li>• Objective</li> <li>• Impersonal</li> <li>• Uses variables which can be measured</li> <li>• Economical</li> </ul>

	<ul style="list-style-type: none"> <li>• Helps people see the worldview of those studies - their categories, rather than imposing categories</li> <li>• Attempts to avoid pre-judgments</li> </ul>	
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• Less easily generalized</li> <li>• Difficult to aggregate data and make systematic comparisons</li> <li>• Subjectivity leads to procedural problems</li> <li>• Researcher bias is built in and unavoidable</li> <li>• In-depth, comprehensive approach to data gathering limits scope</li> </ul>	<ul style="list-style-type: none"> <li>• Limited to rigidly definable variables</li> <li>• Less helpful in generating theories</li> <li>• Attempts to make pre-judgments at times (hypothesis testing)</li> <li>• Imposes researcher's own categories to build questions</li> <li>• Mostly deals with closed-ended questions</li> </ul>

**Table 3.1: Difference between Quantitative and Qualitative Research Methods (Liyanage, 2006)**

According to Creswell (2009), paradigm is a way of thinking, communicating, perceiving or viewing the world. It is often termed a worldview or a mind-set (One of the most important points of paradigm is its subconscious nature that is, it is hidden). Many called them paradigms (Lincoln and Guba, 2000); others, Epistemologies and Ontologies (Crotty, 1998); or, generally conceived research methodologies (Neuman, 2000). Paradigm was described by Guba and Lincoln (1994) as an overall conceptual framework, which a researcher may work with or the ‘basic belief system’ which deals with first principles. It is a general view describing the nature of the world and a person’s place in it and explaining their relationship with the world. From Lincoln and Guba (2004) view, a paradigm is a person’s best perspective of the world, based on the answers to the metaphysical questions.

There are different types of research paradigms, which can be roughly categorized as either alternative paradigms (realism, interpretivism) or dominant paradigms (positivism) (Saunders, Lewis and Thornhill, 2007). The default paradigm for most scientific research is positivism and it assumes an ontological position, which is: there is a true reality that is discovered by means of rigorous, empirical and mostly quantitative study (Guba and Lincoln, 1994). The Positivists paradigm is not suited for this study for the fact that positivist researchers detach themselves from the research problem and are, hence, not able to deeply and subjectively interact with all the respondents as it is a key requirement in this study to fully and better understand the research problem being investigated (Yin, 1994). All the

uniqueness of construction project's organisational structure, culture and human resource motivation need a careful consideration for better understanding of their influence on the project. In addition, the research problem requires an investigation into the managerial and supervisory SC development currently in practice in construction management in Nigeria. This is necessary as the organisations, people and technologies involved in construction management are undergoing constant changes, making it impossible to repeat the study under the same exact circumstances as positivism requires repeatability of studies. This is obviously not possible in this instance (Lee, 1989) as no two construction projects are the same. Taking into consideration these important facts, positivism as a scientific research paradigm is therefore deemed not suitable for this study.

Positivism employs a lucid quantitative approach to investigating all phenomena, while post-positivist approaches tend to explore and describe in-depth phenomena in a qualitative perspective. The application of positivism is to ascertain a clear number of participants who lean towards any ideology. Then post-positivism is used for in-depth understanding of those ideologies. This approach was adopted as humans' views are not objects that should be just counted, but they are subject to lots of influences on feelings, perceptions, behaviour and attitudes; these being what the research intends to capture to address its stated aim. Positivism regards all these stated above as irrelevant and belonging to metaphysics. It however embraces verifiable concept of truth and ascertainable fact of reality not dependent on belief alone, which makes it a very vital approach in this research. Post-positivism is important to this research as well, because it generally relates to the interactive and participatory nature of a qualitative nature of method of research.

Furthermore, the pertinence of interpretivism to this research is evaluated. While dealing with interpretive, especially in situations where the social and organisational reality is complex and can be observed or comprehended imperfectly, there is an important need for the investigation of all the different viewpoints and aspects of one reality (Perry *et al.* 1999). This process of investigating the different viewpoints and aspects is called triangulation (Perry *et al.* 1999). Triangulation was applied in this study through multiple interviews that were conducted on supervisors, managers and directors of construction projects in Nigeria. This was done by comparing the results of the interviews (Perry *et al.* 1999).

This research, at this stage, adapted an interpretive approach which is the research philosophy for this study. This is because the interpretive approach allows for an in-depth perusal of the details of the situation and an attempt to understand the reality or perhaps a reality that influenced that situation. From the interpretive view, it is important to explore the subjective meanings that motivate people's actions, for better understanding of their actions. Furthermore, for this study, the research strategy applied is the descriptive approach since the study aims to collate first-hand information from the multiple project managers and directors of construction organisations. A descriptive research aims to present detailed facts concerning the status and nature of a situation, as it exactly exists at the time the study was carried out; bearing in mind Morgan and Smircich's (1980) position about humans being autonomous, intentional and having freewill, continuously shaping the world at the realm of their immediate experiences; coupled with the fact that human nature is voluntarist.

As discussed in the paragraph above, though the epistemological position of this research leans towards interpretivism and deploys the qualitative strategy, combining it with some aspects of quantitative strategy from positivism provided a richer outcome, as adopting just one paradigm may offer limited window to the research (Mingers, 1997). This enabled the study to understand and analyze some quantifiable views, which are also important objectives of this study.

For this reason, *multi-methodology* approach was found most suited for this study and was adopted. Multi-methodology is perhaps relatively emerging as a popular research methodology where more than one research methodology is combined in whole or part within an intervention (Mingers, 1997). Though Fellows and Liu (2008) emphasized that the established practice is that a research study must identify with a paradigm, multi-methodology approach is very attractive and possibly produces the best results in social science researches, which includes the complex construction industry where qualitative and quantitative approaches should be seen and applied complementarily rather than competitively and mutually exclusively (Dainty, 2007). Summarily, although this research will adopt multi-methodological pluralism approach, greater emphasis will be placed on qualitative strategy to the end that the blend will yield an improved result in this research study on SC in construction management (Dainty, 2007).

### **3.2.1. Ontology**

According to Saunders *et al.* (2007), ontology is the study of being concerned with the nature of reality. It raises the question 'what is', through the nature of existence, and with the structure of reality as such. It is about the 'claim and assumptions' that are made around the nature of social reality; claim about what exists, what it looks like, what units make it up and how these said units interact with each other (Grix, 2001). Ontology will sit with epistemology and would be updating the theoretical perspective, since each theoretical perspective expresses a certain way of understanding what ontology is, as well as certain way of understanding epistemology (Crotty, 1998).

There are assumptions that some complexities exist when considering phenomena like power, culture and control. Flower (2009) investigated if these are just illusions or if they really exist. The writer further discussed how a researcher determines these realities – do they exist independently of those who live them (objectivism) or through the experience of that reality (subjectivism). Consequently, we all have a degree of deeply embedded ontological assumptions – this myself inclusive- which, like in every other case will affect my view on what is real and whether I attribute existence to one fact over another during this research. Flower (2009) strongly cautioned that if these assumptions are not properly identified and checked, a researcher may be blinded to certain aspect of the inquiry and the overall research. Since different views might exist about what constitutes reality, another important question is how this reality was measured, and what constitutes the knowledge of this reality. These questions lead us to a discussion of Epistemology.

### **3.2.2. Epistemology**

Epistemology is that branch of philosophy that is concerned with what constitutes acceptable knowledge in a field of research study (Saunders *et al.* 2007). It is more concerned with the theory of knowledge, mainly regarding its validation, methods and the possible way of achieving the knowledge of social reality, or whatever it is understood as (Grix, 2001). It is a way of explaining and understanding what we know and how we know (Crotty, 1998). Epistemology focuses more on the process of gathering knowledge and it is concerned with developing new theories or models, which is better than competing models and theories



(Grix, 2001). Epistemology also offers a philosophical background for deciding on what kinds of knowledge are adequate and legitimate (Gray, 2004). As observed by Mason (2002), epistemology ask questions on how to collect or 'generate' data. Epistemology is literally, theory of knowledge and should concern the principles and rules which are decided by the researcher on whether and how social phenomena can be known, and how knowledge can be demonstrated. Different epistemologies have different things to say about these issues and about what the status of knowledge can be (Mason, 2002).

Flower (2009), in analyzing Hatch and Cunliffe (2006), highlights the relationship between ontology and epistemology and how one informs and depends on the other. When considering this relationship and interdependence, the need to understand the position and view of the researcher is made more obvious. Flower's (2009) position is that where a researcher holds certain ontological assumptions, those assumptions may influence the epistemological decisions and conclusions drawn. But Thornhill (2007) notes further that some researchers have argued that data gathered from objects that separately exist outside the researcher (an external reality), are less prone to bias and hence more objective. Still, some researchers are of the view that if social phenomena are also considered, there is need to present these in a statistical form rather than as a narrative, for it to hold the required authority.

In summary, for this study, the proposed epistemological philosophical position of the study leans towards "Interpretivism", whilst the ontological position leans towards "Constructivism" (Creswell, 2014). In terms of the axiological philosophical position, a stance leaning towards "Value - Free" (Creswell, 2014; Saunders *et al.* 2012) was followed. In the same vein, the methodological approach is pluralistic or multi-methodological (Morgan, 2014; Johnson and Christensen, 2014; Bryman, 2012; Johnson *et al.* 2007; Mingers and Brocklesby; 1997). The nature of the study demands that both quantitative and qualitative approaches are employed.

### **3.3. Research Design and Strategy**

Bryman's (2008) investigation revealed that the research design provides the framework for data collection and analysis. It further revealed that it is very important that a suitable and

effective research method is selected by the researcher. Research design is achieved by identifying the related literature essential aspects and then the research questions (Janesick, 1994). The proper review of the literature and development of objectives assisted me as a researcher in constructing and clarifying the research questions. The choice of which research design to adopt was guided by the research objective(s) and question(s), of course, the existing knowledge, resources available, the philosophical views and the time frame available to me as a researcher (Yin, 2009). The main types of research designs are: • Cross Sectional or Survey Design • Comparative Design • Experimental Design • Longitudinal Design • Case Study Design

RESEARCH DESIGN	RESEARCH STRATEGY	
	QUANTITATIVE	QUALITATIVE
<b>Cross Sectional or Survey Design</b>	Typical form. Survey research or structured observation on a sample at a single point in time. Content analysis of questionnaire.	Typical form. Qualitative interviews or focus groups at a single point in time. Qualitative content analysis of a set of documents relating to a single period.
<b>Comparative Design</b>	Typical form. Survey research in which there is a direct comparison between two or more cases, as in cross-cultural research.	Typical form. Ethnographic or qualitative interview research on two or more cases.
<b>Experimental</b>	Typical form. Most researchers using an experimental design employ quantitative comparisons between experimental and control groups regarding the dependent variable.	No form.
<b>Longitudinal Design</b>	Typical form. Survey research on a sample on more than one occasion, as in the panel and cohort studies. Content analysis of documents relating to different periods.	Typical form. Ethnographic research over a long period, qualitative interviewing on more than one occasion, or qualitative content analysis of documents relating to different time periods.
<b>Case Study Design</b>	Typical form. Survey research on a single case with a view to revealing important features about its nature.	Typical form. The intensive study by ethnography or qualitative interviewing of a single case, which may be an organisation, life, family, or community.

**Table 3.2: Different types of Research Designs**

Research strategy is a plan showing how the researcher will go about answering the research questions to meet the research objectives (Saunders *et al.* 2007). It also includes the research approach taken towards data collection. A research strategy is mainly established based on the research objectives and questions constructed. The constructed and selected questions will channel the researcher's path on the suitable strategy to be undertaken. Quantitative and qualitative research form the two main research strategies. And selecting the type of research strategy to employ depends on the availability of data/information and the purpose of the study undertaken (Naoum, 2007).

This research has adopted Cross Sectional or Survey Design and chosen both the quantitative and qualitative strategies as a mixed strategy for this research. The research design and strategy adopted enabled me to identify the research problems, acquire in-depth understanding, assess and measure the current situation. To achieve the research's aim and objectives, the research was categorized into seven main components below:

1. Review existing literature
2. Create questionnaire survey and semi structured interview questions
3. Conduct survey and interviews
4. Analyze results and findings
5. Develop framework and guidelines
6. Conduct survey to validate the framework
7. Conclude and recommend framework, guidelines and other findings of this study.

### **3.4. Methods**

Research method is the procedure for collecting data (Bryma, 2008). The strategies of questionnaire, questionnaire survey and semi-structured interview have been adopted for this study (Saunders *et al.* 2007). Triangulation is the use of two or more independent sources

of data collection methods within one study to help ensure that the data are 'telling you what you think they are telling you' (Saunders *et al.* 2007).

The methods adopted for the collection of data in this research were approved by the Ethical Committee of LSBU after ensuring that all ethical issues raised were addressed. The ethical codes of LSBU was strictly adhered to. Although questionnaires and interviews are potentially intrusive, the questions for this research are not personal or sensitive questions, participants were advised to only respond to whatever they wish to. The questions have been structured to focus on the professional acts and experiences of the participants and not on their personal lives. For confidentiality, all data were backed up and stored in location separate from the original location. Data collected for this research were kept and used in a private personal computer with restricted access. Installation of the latest updates of Microsoft windows which includes fixes to previously unknown software bugs, this improved the stability of my software. All data collected are anonymous data and email address or phone numbers requested and received were strictly for follow up purposes or sending a summary of the research findings to participants.

#### **3.4.1. Database for Data Collection**

There are two main types of data collection approaches from databases of organisations; Homogenous and Heterogeneous. As the name implies Heterogeneous is data collection from more than one database and mix matching them into one, while homogenous is the collection of data from a single database (Bodamer *et al.* 2001). The advantage of using a homogenous database is the issue associated with heterogeneous database where the classification and definition of the database may not be the same for all the databases as is the situation in most cases.

In Nigeria, there are many professional construction organisations and groups, from whose databases participants can be drawn. They include but not limited to: Nigeria Society of Engineers - NSE (Council for the Regulation of Engineering in Nigeria COREN), Nigerian Institute of Architects - NIA (Architects Registration Council of Nigeria ARCON), Real Estate Developer's Association of Nigeria - REDAN, Council of Registered Builders or Nigeria - CORBON, and the Nigerian Institute of Building - NIOB. This research employed NSE/COREN

homogenous database for the collection of data. This is because among the listed and other professional construction organisations (PCO), NSE/COREN has one of the most updated databases. This is because it is illegal to execute any construction project in Nigeria without being a registered engineer with COREN and a corporate member of NSE. COREN is the government agency that regulates engineering, while NSE is an association of Nigeria engineers. To be COREN certified, an intending corporate member must undergo admission training and examination to be elected. All Participants for the questionnaire survey and interview were drawn from the membership database of NSE. NSE also meets the required minimum years of experience, as this research is targeting participants with a minimum of five years of experience, which is also the minimum years of practice to be NSE certified. Though NSE database cannot be said to be comprehensive as it houses other aspect of engineering and does not have all the construction organisations in Nigeria. However, the focus of this research’s study unit is not the size and structure of the organisations, rather the SC of individual managers and supervisors, who have practiced for at least five years.

### 3.4.2. Stratifying Database

From the NSE database, respondents and participants were stratified before data collection, which ensured a robust data collection across all levels of management, helping avoid a situation where all the results come from a level of management, which would have skewed the results. This was done in the following order:

QUESTIONNAIRE	INTERVIEW	PERCENT	LEVEL OF MANAGEMENT
75	15	48.4%	Site Managers/ Supervisors (front managers)
50	10	32.3%	Project Managers (Middle Managers)
30	5	19.3%	Project Director/ Executives (Senior Managers)

**Table 3.3: Stratification of database**

It became necessary to stratify and engage more numbers of line managers. This is to reflect the fact that in Nigeria construction industry, there are more line managers in most organisations managing different projects or tasks depending on the scope of the project. According to Donaldson *et al.* (2013), at the management level, most organisations’ structures are pyramidal, and percentage of participants in this study agrees to that.

### **3.4.3. Questionnaire**

Turner and Muller (2005) identified leadership SC based on the literature review of leadership styles of project managers as success factors on projects which they conducted a questionnaire survey to verify the variables. After the findings generated from the literature review of this research, there was need for a survey questionnaire to be developed and used as a method of collecting data, just like Belassi and Tukel (1996) created a questionnaire survey which they used to develop a framework for determining key critical success/failure factors in projects.

### **3.4.4. Pilot Questionnaire Survey**

To identify missing variables, biases, potential ambiguities or other issues, it was necessary to have a pilot phase for the questionnaire survey prior to general distribution of the main survey. A total of twenty (20) sample questionnaires were emailed to members of NSE for their comments, inputs and to find out how hard or easy it was for them to understand the questions asked, as well as to determine how much time it takes for them to complete the questionnaires. The pilot questionnaires were the same as the main questionnaires, it included the same questions (see appendix F).

Only two of the twenty questionnaires were returned in the first week, subsequently, an email was sent as a reminder to them. But that yielded just one more response in the second week. A phone call and a text message were used by the third week, many of the respondents requested that the questionnaire be brought to their respective offices. Fourteen (14) questionnaires were redelivered by hand, these were completed and returned. Three more questionnaires were delivered at the meeting of NSE and were completed on the fourth week. It was discovered that phone call and hand delivering in person was the most effective approach to getting higher responses among professionals in Nigeria. This approach is considered expensive as time and money is needed for in-person phone calls, delivery and collection of the questionnaires. Suggestions from the respondents like the size of the questionnaire, time of completion and clarity of questions were reviewed and applied. As recommended, comment boxes were reduced to shorten answers/responses.

The questionnaire was formulated from the questions and objectives of this study as outlined in Sections 1.2 and 1.3. The questionnaire contains a cover letter and has two sections. The cover letter introduces the objectives and scope of the survey. The first section is used to gather demographic data regarding the respondents' education background, years of work, professional areas, position, and company names, age and gender. In the other section, participants are invited to rate the importance and applicability of SC gathered from the literature above (see Section 2.3). A 4-level Likert scale is employed to standardize respondents' feedbacks; Example 1 – very important, 2 – important, 3 – unimportant, 4 – very unimportant. There are other five 4-likert scale sections in the questionnaire, addressing objectives of this study.

#### **3.4.5. Main Questionnaire Survey**

For the main questionnaire survey, 500 questionnaires were sent out, with the expectation of at least 100 completed and returned usable questionnaires for analysis. 434 of the 500 questionnaires were handed out at NSE monthly ordinary general meetings of members of Abuja and Maitama branches and the remaining 66 questionnaires were emailed to participants. A covering letter and a backing letter from the executive secretary of NSE accompanied every set of questionnaires sent (Appendix E and F). The cover letter and questionnaire have an introduction, which contained an overview of the research as well as the benefits of the study to the respondents and the industry, the definition of terms, information concerning maintaining confidentiality of the identities of the participants and their organisations, simple instructions on how to complete the questionnaire together with a return address. Though 136 questionnaires were picked up in person from the respondents. The London South Bank University logo and a letter from LSBU were used to authenticate the sponsorship of this study (Appendix D). As intended, the cover letter solicited the understanding and cooperation of the participants in responding to the questionnaire. The questionnaires were structured to assist in monitoring the returns and follow-up if necessary. A period of two weeks was given to respondents to the return the completed questionnaire.

We had a situation where the response rate was less than 10%, poor and inadequate for the research. Hence the researcher followed up the respondents; this had a significant effect by

improving the response rate of the survey (Gillham, 2000; Tourangeau *et al.* 2000; and Bouchard 1976). According to Dilman (2000), the two conditions for increasing return rate include opportunity and motivation. The follow up was through constant phone reminder and the replacement of missing questionnaires. This way, the respondents have another opportunity to complete and return the questionnaire without having to go through a pile of files or emails to look for the previous questionnaires. This was strenuous and expensive because of logistics in Nigeria, many of the second questionnaires were delivered to respondents in their respective locations and collected by hand. In all 135 questionnaires representing 87% of completed 155 were picked up by hand. While the email-respondents were reminded through email with another copy of questionnaire attached to it. In all, 20 questionnaires, representing 13% of the completed 155, were returned by email.

The respondents were motivated with a promise that a brief copy of the findings and conclusion of the research would be made available to interested respondents. Demscombe (2003) suggested that each follow-up effort adds some returns and this was the case in this study. Also, the quantitative data was analysed using SPSS software application.

### 3.4.6. Bio Data of Respondents from Questionnaire Survey

These questions were asked for an understanding of the background of construction managers and supervisors in the NCI who participated in this research study. The questions shielded light on the business focus of their organisations, their current positions and roles in their organisations. Their experiences, time at current organisation, career and the number of positions held, qualifications obtained and gender.

Is your company a construction Specialist?					
		Frequency	Percent	Valid Percent	Cumulative %
<b>VALID</b>	Yes	128	82.6	82.6	82.6
	No	27	17.4	17.4	100.0
Total		155	100.0	100.0	

**Table 3.4 Specialisation of respondents' organisation**

From table 3.4, 82.6% of respondents' organisations are construction specialist organisations. This implies that most of the respondents work in organisations responsible for the day-to-day operation and oversight of a construction site, management of suppliers, vendors and



trades, and the communication of information to all involved parties throughout the course of a construction project (Hughes *et al.* 2015). This result highlights the suitability of majority of the respondents for this research study. And this indicates that 82.6% of respondents are directly involved in construction activities and are employed by organisation focused in delivering construction related projects and programmes. They are practitioners in the Nigerian construction industry (NCI).

Which best describes your current job position					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Project Executive/Director	9	5.8	5.8	5.8
	Project Manager/Engineer	55	35.5	35.5	41.3
	Site Manager/Engineer	26	16.8	16.8	58.1
	Supervisor	40	25.8	25.8	83.9
	Others	25	16.1	16.1	100.0
<b>TOTAL</b>		155	100.0	100.0	

**Table 3.5 Range of respondents' current job position**

Data gathered from the questionnaire survey as listed in Table 3.5, 35.5% of the respondents are project managers, 25.8% are supervisors, 16.8% are site managers. Others are 16.1% and Project executives are 5.8%. It is worthy of note that majority of the respondents are project managers, supervisors and site managers in this order. This result indicates that these are the three common roles construction professionals in occupy in the NCI. With the supervisors representing the frontline managers.

How long have you been involved in managing construction project?					
		Frequency	Percent	Valid Percent	Cumulative
<b>VALID</b>	Less than 1 year	7	4.5	4.6	4.6
	1-5 years	67	43.2	44.4	49.0
	6-10 years	49	31.6	32.5	81.5
	11-15 years	9	5.8	6.0	87.4
	16-20 years	8	5.2	5.3	92.7
	More than 20 years	11	7.1	7.3	100.0
	Total	151	97.4	100.0	
<b>MISSING</b>		4	2.6		
<b>TOTAL</b>		155	100.0		

**Table 3.6 Experiences of respondents in construction management in the NCI**

A total of 76.9% of respondents (44.4% between one to five years, 32.5% between 6-10 years) as revealed from the questionnaires survey, have actively been involved in managing construction projects in Nigeria for the last ten years. This shows that many of the respondents have been actively engaged in construction management in the NCI. The active engagement in the industry shows they have the experience and knowledge to participate in this study.

How long have you been with your current organisation?					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Less than 1	14	9.0	10.5	10.5
	1-5 years	76	49.0	57.1	67.7
	6-10 years	29	18.7	21.8	89.5
	11-15 years	6	3.9	4.5	94.0
	16-20 years	3	1.9	2.3	96.2
	More than 20 years	5	3.2	3.8	100.0
	Total	133	85.8	100.0	
<b>MISSING</b>		22	14.2		
<b>TOTAL</b>		155	100.0		

**Table 3.7 Respondents time at current organisation**

A total of 57.1% of respondents have spent less than five years with their current organisation. It is a significant revelation that majority of construction professionals in Nigeria are not committed to long-term contract with their organisations. This result was referenced to and discussed further in section 4.1.9 of this study.

Career Structure, the number of positions held?					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	1	55	35.5	43.3	43.3
	2	45	29.0	35.4	78.7
	3	16	10.3	12.6	91.3
	4	8	5.2	6.3	97.6
	5	2	1.3	1.6	99.2
	6	1	.6	.8	100.0
	Total	127	81.9	100.0	
<b>MISSING</b>		28	18.1		
<b>TOTAL</b>		155	100.0		

**Table 3.8 Respondents career structure and positions held**

From Table 3.8, 43% of respondents have held just one position, followed by 35.4% of respondents that have held two positions, 12.6% have held three positions, while 6.3% have held four positions, 1.6% of respondents have held five position, and 0.8 of respondents have

held six positions respectively. This result shows number of multiple career positions held by the respondents in NCI.

List of qualifications obtained					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	OND	1	.6	.7	.7
	HND	8	5.2	5.6	6.3
	Bachelor's Degree	112	72.3	78.3	84.6
	M.Sc.	21	13.5	14.7	99.3
	Others	1	.6	.7	100.0
	Total	143	92.3	100.0	
<b>MISSING</b>		12	7.7		
<b>TOTAL</b>		155	100.0		

**Table 3.9 Qualifications obtained by respondents**

From table 3.9, it can be noted that 78.3% of respondent have bachelor's degree as their highest education qualification, while 14.7% of respondents have acquired MSc degrees as their highest educational degree. Majority of the respondents are degree holders, and few have acquired a master's degree. From this result, it can be deduced that 93% of construction professionals in the NCI have either a degree or with an MSc. This infers that the minimum educational qualification required for SC development were met by most of these professionals.

Sex Gender of Participants					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Male	152	98.1	99.3	99.3
	Female	1	.6	.7	100.0
	Total	153	98.7	100.0	
<b>MISSING</b>		2	1.3		
<b>TOTAL</b>		155	100.0		

**Table 3.10 Gender of respondents**

According to Table 3.8, 99.7% of respondents are male, while 0.6% of respondents are female. This data shows that the NCI is surprisingly dominated by male professionals. Only one out of the one hundred and fifty-five respondents is a woman. This is a worrisome revelation. This result validates the report that the NCI is a male dominated industry. Recent studies (Ramos and Félix, 2019; Ojo *et al.* 2019; Afolabi *et al.* 2018) have revealed that the industry discriminates and is not gender friendly toward women professionals. This is responsible for the low number of female professionals in the NCI.

### 3.4.7. Interviews

According to Yin (2003), interview is a type of data collection process in a research study. There are three main categories of interviews: (i) formal survey (structured) (ii) open ended interview (unstructured), (ii) focused interview (semi-structured).

Semi-structured and unstructured interviews are the two main forms of qualitative interviews. An interview is semi-structured when an interviewer (researcher) interviews with guide and follows it, but the interviewee (participant) can decide on how to respond. Questions may not be asked sequentially, and the interviewer may ask questions that are not in the guide. Nevertheless, all the questions in the guide will be asked to all the participants.

Unstructured interviews are best classified as conversations because both share similar characteristics. The interviewer (researcher) would ask a single question, and the interviewee (participant) is free to respond without guidance, and the interviewer (researcher) only responds to points that needs follow-up. According to Bryman (2008), the choice for a research to veer towards unstructured or semi-structured interviews is likely to be influenced by these factors:

- Having a clear focus on the research topic and the desire to have more specific issues addressed will lean towards the semi- structured strategy.
- Researchers that are conducting multiple case study research would require some structures for cross-case comparison and it will need the help of structured interviewing to achieve this.
- Researchers concerned that the use of interview guide will hinder genuine access to the actual views of the interviewees and real facts are the ones most likely to favour unstructured interviews.

This study has a clear aim and objectives and adopted a semi-structured interview approach to support and boost data gathering efforts, this is most suitable for qualitative data gathering of this research. The researcher proposed and conducted thirty (30) in-depth semi-structured interviews on construction professionals. Ninety-six (96) questionnaire

respondents indicated willingness to participate in the interview (see Appendix F), thirty (30) of them were selected to represent all levels of management as stratified in Table 3.3. It is also important to this research that participants have a minimum of five years' experience and that was guaranteed by NSE membership status of the participants. This was necessary to ensure that participants have the basic professional experience to respond to the questions and address the objectives of this study. The interviews were conducted in an individual session; it was averagely estimated to have lasted on an average of 55 minutes per session. LBSU research practice code and other relevant codes were strictly adhered to throughout the entire research.

To manage bias, questions that imply there is a right answer were replaced with those that focus on the interviewee's true point of view. Through the interviews, it was constantly emphasized that every answer is socially desirable, this encouraged interviewees to project their feelings and still provide honest answers. Interviewees were conversationally engaged and question wordings were continually varied to minimize habituation of providing same answers to similar worded questions. To minimize confirmation bias, the researcher frequently reevaluated his impressions of respondents and challenge pre-existing assumptions and hypotheses to check on their influences on the presentation of all findings, whether supporting or challenging his assumptions. Also, the researcher avoided questions that are suggestive or leads to certain answers. To minimize culture bias, the researcher showed unconditional positive regard and was cognizant of the interviewees' own cultural assumptions.

Using this semi-structured interviews approach that categorized participants into groups based on their roles and responsibilities enabled the study to capture the participant's genuine perspective and view as it relates to skills and competences (SC) of their job and the proposed framework, this allowed the researcher to understand and acquire knowledge of the complex social phenomena in construction management. It provided the flexibility and opportunity needed in the research for respondents to raise important comments, which helped the interviewer assess and understand how their roles and level of management differs as well as the SC required by each category. Also, the information from the semi-structured interviews better allowed for triangulation of the data collected from the

questionnaire surveys and literature review. According to Grix (2001), triangulation can assist the researcher in obtaining better and more reliable data and also minimize the chance of biased results and findings. The data from the interviews were recorded with a digital recording device, jotted and documented as field notes. This was done to support and increase the accuracy of the data collection. The qualitative data obtained in this study were analysed using the qualitative software – “NVIVO”.

### **3.5. Development and Validation of Framework**

The main intention of the researcher is to develop and validate a framework after analysing the data collected. The stages and methods of conducting this research were used to develop a pilot framework, which is the first draft and model of the framework (see Section 2.14 and Fig.2.5). This was necessary to demonstrate the process and stages necessary in developing the framework. SC variables from the literature were reduced to a reasonable number through their frequency of citation to enable reflection where necessary; that is, the number of authors that cited them as a major variable in their work. This is necessary for this study to focus and reflect the currency of practice and address the key issues of this research. The findings from the data collected from the industry through questionnaires and semi-structured interviews were used to develop the second draft framework. The second draft framework was developed through the analysis of data gathered from NCI and patterns modelled out in the first draft framework. The third and final state was an improvement on the second draft gotten from the opinions and inputs of the industry after the second draft was distributed for review and validation. These inputs cut across all levels of management; It is the hope of the researcher that this effort validated the second draft of the framework. The framework was validated by giving due cognizance to the following areas;

1. The framework’s comprehensive and robust
2. Logical, if people can follow it
3. Perceived to be of value and of use
4. Areas of further improvement (where necessary)

This was necessary to make the framework thorough, detailed and to remove bias.

Frameworks can be validated through interviews, questionnaires and the use of focus group discussions. The researcher and ten (10) of the participants validated the framework through questionnaire. From the thirty (30) participants that were interviewed during the collection of data, ten out of the participants who indicated interest to participate in the validation exercise were contacted for this validation. They unanimously chose questionnaire because it will give them abundant time to study and respond to the framework. Seventy-two hours was given to them study the framework and the set of guidelines as well as to respond to four structured questions that reflected: comprehension, robustness, acceptability and area for improvement. The findings and outcome of the questionnaire were incorporated in the final framework and sets of guidelines.

### **3.6 Summary**

This chapter has described in detail the methodological approach adopted in this study. The mix method approach adopted comprised semi-structured interviews and a questionnaire survey. Thirty (30) semi-structured interviews were conducted. One hundred and fifty-five (155) questionnaires were successfully completed, with ten (10) additional questionnaires for the validation of framework and guidelines.

Participants are active construction professionals registered with NSE. Participant were mobilised through emails, phone calls and SMSs. The general meetings of NSE provided an avenue for the distribution and collection of most of the questionnaires. Overall, the combined methodological approach, though challenging, was successfully used in the data collection. The methodology adopted in this study was mindful of the ethical issues and complied with research ethical process of LSBU. This data collection approach is recommended to other researchers conducting researches in Nigeria, especially in the construction industry. Nevertheless, a new strategy on how to minimize its cost implication needs to be developed.

## **Chapter 4:**

### **The Challenges with Applying and Developing Skills and Competences (SC) in Nigerian Construction Industry (NCI)**

#### **4.0. Introduction**

Series of challenges in the practice of SC have been identified by some researchers from the review of literatures in chapter two. This chapter outlined and reviewed these challenges. They are: writing and reading challenges, multiculturalism, finance, lack of effective communication and teamwork, planning and scheduling, agreement and conflicts, failure of modernized training infrastructure and lack of creativity. They include, but are not limited to, cash reserves (Viswanathan *et al.* 2010) and lack of financial capital for the development of the skills (Henrique and Herr, 2008), deficient managerial skills (and Quartey, 2010), inadequate advisory services and oversight functions, deficiencies in technology needed for the execution of these trainings (Fafchamps, 1994), insufficient labor support services (Mead and Liedholm, 1998), lack of easy access to credit to fund SC developments (Fafchamps, 1997) and difficult access to import some of these skills (Tybout, 2000). Social networks also play a part in making people shy away from unpopular aspects of development (DeBerry-Spencea and Elliotb, 2012; Arnould and Mohr, 2005).

Construction organisations are facing important challenges when developing SC for effective construction management among their managers and supervisors. The industry must respond to these challenges, by first identifying them and then finding effective solutions to them. This chapter identified and outline most of the challenges from the literatures and the NCI. and proffered suitable ways to deal with these challenges.

#### **4.1. The Challenges of Skills and Competences (SC)**

Previous studies have made it clear that the challenges faced in today's world by construction management are more complex and ill-defined than is revealed in the common bodies of knowledge (Cicmil *et al.* 2006; Chipulu *et al.* 2013). In the last decade, literatures warned of a gap between school education and the real world of construction management (Berggren and Söderlund 2008, Jaafari, 2003; Chipulu *et al.* 2013), with education perceived as being unable to reveal the challenges of projects appropriately (Crawford *et al.* 2006; Chipulu *et al.* 2013). Many of professional institutions' competence frameworks were criticized in the past



for lack of thorough practical basis (Crawford *et al.* 2006; Chipulu *et al.* 2013) and for not being able to comprehend these issues properly (Thomas and Mengel, 2008; Chipulu *et al.* 2013).

For years now, researchers are still grappling with the understanding of what management and leadership development really means (Ebrahimi and Mohamad, 2015). This issue of detailed understanding posed a major challenge in any management development. This was elaborated by Fellows and Liu (2015) when they argued that understanding is essential for effective delivery or realisation of any development (see subsection 2.4 for discussions on development of management SC).

The main established issue is the fact that the three most widely accepted project management institutions: the International Project Management Association (IPMA), Association for Project Management (APM) and the Project Management Institute (PMI) who virtually run project management by training, assessing, and certifying member practitioners, as well as set standards, which influence academics and others thinking, and also accredit academic programmes, show that the institutional frameworks pay greater attention to functional and cognitive rather than social competences (Crawford *et al.* 2006; Chipulu *et al.* 2013). Evidence from some researches (Bashkarev, 2015; Izatul *et al.* 2013; Riza-Yosia and Zou, 2012) suggest that much greater salience ought to be paid to social SC in construction management. Riza-Yosia *et al.* (2006) resolved that instead of technical skills and knowledge, human and behavioural competences are most paramount to project success. Similarly, El-Sabaa's (2001) research, ranked human skills higher than conceptual and organisation skills, the technical skills were significantly placed lower than the rest (Chipulu *et al.* 2013). This research was designed to investigate and understand the true challenges inherent in skills and competences practiced in Nigeria but before the findings of the research, the review of literatures identified these issues categorised and described below.

#### **4.1.1. Understanding, Agreement and Conflicts**

It is believed that managers possess a good level of written and oral communication skills, and often these may not have been formally taught communication skills, instead they would have been experiences acquired on-the-job. Most managers in the NCI, possess further and higher education qualifications, and have formal basic education (Table 3.7). About two decades ago, in the United Kingdom, only three of the 20 executives who were interviewed by Briscoe *et*

*al.* (2001) had degrees or HND qualifications. Although these individuals become directors, senior managers and owners of smaller organisations in the construction supply chain, some still lack key oral and written skills that are essential for successful partnering and collaboration required in managing and delivering a successful construction project. A good instance of such deficiencies is the inability to understand, interpret and effectively respond to contracts and other technical documents. Although the use of external expert advice in this area is being practiced, an inability of managers to comprehend the finer points of a binding legal contract is a significant handicap to supervision and management (Briscoe *et al.* 2001).

According to Hardison *et al.* (2014), unprofessional, disrespectful or attempts by a manager or supervisor to change worker's performance or behaviour have the potential to undermine a positive work atmosphere. Nevertheless, it is important for managers and supervisors to understand that, when corrective action is imminent, there are ethical and effective ways to reprimand workers on best practices. As Lu and Wang (2017) revealed, agreement and conflict must be managed effectively to ensure a positive outcome: and that failure control conflict between two sides deteriorates the quality of existing relationship and lead to poor performance. Odiorne (1991); Conchie *et al.* (2011) suggested that managers and supervisors must facilitate relationships between all workers and must possess the authority and knowledge of analysing and understanding disruptive behaviours to be able to resolve conflicts and discipline when necessary. Managers and supervisors without these leadership skills continuously fan crisis and escalate conflicts by their actions or inaction on the projects.

#### **4.1.2. Multicultural Challenges**

Abankwa *et al.* (2019) assert that modern project teams are more likely to be multicultural and active. Therefore, attention should be paid to these, lest the active energy be abused by ill managed multiple cultures (Chipulu *et al.* 2013). According to Kim (2017) and Thompson (2018), management varies from one culture to another, therefore application of managerial skills and principles should be adjusted to the new situation. For examples, the natives of over 250 ethnic groups in the country are part of the NCI work force and they come from more than one community. There are Yoruba, Igbo, Hausa, Efik, Tiv, Borgu, Igala, Ijaw, Urhobo, Ishekini, Fulani, Gwarri, Nupe, Kanuri, Idoma, Annang, Benin and other tribes. This

composition indicates differences in language, values, attitudes, beliefs, religion and education.

From his research, which was carried out over three decades ago in 40 countries around the world, Hofstede (1984) found that leadership style varies from one country to another irrespective of the economic situation. But Cullen and Parboteeah (2013) support the economic school which thinks that as nations of the world converge and become equally industrialized, managers all around the world are forced to use the same management tools and methods to execute their managerial duties, this eradicates international and cultural differences in management. One fact against this thought is that all nations of the world cannot at the same time be equally industrialized (Bendix, 2017). Surely, these SC are still deployed within the cultural linings of respective countries. The economic school is like the universal school where scholars like Blake and Mouton (1985) long contributed to. They reported that organisations gradually became similar across cultures. They suggested that it would be more appropriate to establish universal theories for practices in the management of multicultural organisations (Bromley and Meyer, 2017). Many scholars (Bridges, 2017; Rogers, 2017; Kelly, 2017; Hewstone *et al.* 2016) believe there are psychological and sociological Schools, but Barrett and Bass (1972) observed that there is a great deal of overlapping and interaction between psychological, sociological and cultural dimensions, therefore, they categorized the cross-cultural studies into only three comprehensive groups: universal, economic and cultural cluster.

The main theory of the cultural school is that culture is an independent variable which influences managerial attitudes and behaviours. Nowotny *et al.* (2013) established that tradition and socio-cultural values, and environmental variables, are the core cause of management philosophy differences between Europe and North America. Megginson and Eugene, from their study of the application of management principles in developing countries, conclude that the functions and principles of management are global, but that methods and management application are vastly dependent on cultural variables. Therefore, they resolved that culture is a crucial determinant of management effectiveness. Hence, ill managed cultural differences among the workforce could be disastrous (Reason, 2016).

#### **4.1.3. Lack of Effective Relationship, Communication and Teamwork**

To secure work with the client, the contractors' project managers initially often need to make presentations to show their abilities to execute the task in accordance with the project requirements. In the construction industry, as stated by Yiu and Cheung (2006), conflicts mostly seem inevitable due to high differences in interests amongst the participants of construction projects. According to Mitkusa and Mitkusa (2014), the relationship between the client and the contractor is defined by communication. Unsuccessful communication is known to be the main cause of conflicts between the client and the contractor in the construction industry (Osei-Kyei *et al.* 2019; Gamil and Rahman, 2018). Secondly, the true and major cause of construction related conflicts is unsuccessful communication between and among the participants in a construction project (Osei-Kyei *et al.* 2019; Hwang and Ng, 2013). Similarly, in a partnering and collaborative agreement, managers need to possess strong presentation and negotiating skills to guarantee they get a fair share of the profits adequate for the risks incurred (Johnston and Marshall, 2016). Most managers, especially in Nigeria, lack these skills and cannot afford them, whereas, each of these skills needs to be acquired, developed and improved (Nwosu and Makinde, 2014). To ensure genuine satisfaction at all levels of the project and delivery of quality services and products, there is a growing need for improved communication skills in managing relationships with clients and workers (Osei-Kyei *et al.* 2019; Gamil and Rahman, 2018). Managers must understand the need for them to strive to establish positive exchange relations among employees in efforts to improve job performance and job satisfaction (Michael *et al.* 2006). This is necessary as they relate and interact with employers than any other level of management (Kerzner and Kerzner, 2017).

Several contractors usually work as part of the main team and sub teams in different units on most construction projects (Dhurup *et al.* 2016). And irrespective of the size and scope of the project, it requires more than one person to successfully deliver construction projects (Puspa-Negara *et al.* 2019; Macomber *et al.* 2018). This teamwork required of construction projects, often brings into contact other professionals such as the design professionals, architects and engineers, builders, surveyors, all of whom are grouped into sub-teams based on the services they provide or the materials they supply. The inability of managers or their supervisors to be

able to communicate effectively with these sub-teams of professionals, who normally will possess highly developed skills and, of course, advanced levels of training in their areas of specialisation, is a major issue in project management (Osei-Kyei *et al.* 2019). Increasingly, such professionals like structural engineers, architects, electrical or mechanical engineers will seek to transfer plans and drawings down to the managers for onward transfer to the clients, using computer technology. As the client's representative, the managers need to contribute fully to the design and planning process of every task; some ICT skills will thus be needed for speedy inter-team communications. In addition, managers need to be in touch with advanced Information and communication technology (Hu and Kapucu, 2016). It is important that managers and supervisors build positive atmosphere for their employees. Scores of researchers (Swuste *et al.* 2012; Lingard *et al.* 2009) believe that team building skills will have positive effect on building a pleasant atmosphere needed for employees to do their work this will help create an enabling environment and genuine willingness to consider new ideas that will improve overall job performance.

Motivation and central leadership of the construction workforce are often critical skills for managers (Bratton and Gold, 2017). When project managers, irrespective of the scope of projects and size of organisation, lack the ability to lead their workforce through the life span of the project, issues are developed. Some managers on sites do not have any higher-level management qualifications; it is very unlikely that they possess any formal leadership skills – although, in construction, learning by experience will produce significant leadership abilities (Singh *et al.* 2017). But the question is, whether these abilities go towards providing the essential motivational influences for problems of satisfactory construction management. It is also a leadership responsibility to be able to train others in an organisation in new working methods appropriate for managers and supervisors (Borkovskaya *et al.* 2018). For continuous improvement of performance, managers and supervisors need to be able to identify and resolve problems. This is still the sole responsibility of the project managers or senior personnel within construction organisations (Hardison *et al.* 2014).

#### **4.1.4. Lack of Proper Planning, Scheduling and Directing**

Construction work is a sequential activity; it therefore relies heavily on detailed planning and programming to be successful (Zhang *et al.* 2017). Normally, a given activity or task cannot be undertaken until a preceding dependent activity has been completed (Argyris, 2017). Planning skills are very important and such skills are once again associated with managers' successful performance (Briscoe *et al.* 2001).

According to Iyer and Banerjee's (2016) report, managers have exhibited high levels of deficiency in project planning and execution, and it could be argued that often, these managers are not given the opportunity to be involved in project programming. Hardison *et al.* (2014), found that improved planning by the construction managers and supervisors leads to improved productivity. Project managers and clients exclusively plan and programme the project and force it down on the frontline managers. This contradicts Hardison *et al.* (2014) findings and creates planning and operational crisis on construction projects, especially, in Nigeria. Lingard *et al.* (2012) concurred that managers and supervisors are more likely to have a significant impact on daily project planning, scheduling and management, compared to project managers or owners. According to Manuele (2008), a manager's leadership in the implementation of pre-job planning meetings and job analyses with workers is key to preventing serious issues and confusion that always characterises the absence of leadership. This planning process must be completed before the work commences (Bielefeld, 2017). Issues like occupational safety, health hazard exposures, task duration, task requirements and expectations are to be assessed, discussed and operational changes should be planned on time (Manuele, 2008). This is also not the practice in most organisations and therefore issues abound. This practice and being close to the workers will help managers and supervisors monitor and respond to worker's stress level and issues like work-related pressures, conflicting job demands, extreme time pressures, incentives, cutting corners and taking un-assessed risk. This helps managers maintain job satisfaction and improve employee performance and safety behaviours (Leather, 2007; Langford *et al.*, 2000).

It is exclusively important for managers and supervisors to be competent in the procedures for directing workers' tasks and responsibilities in a way that the instructions and operating lines are clear, precise and detailed (Kerzner and Kerzner, 2017). Properly delegating

responsibilities and work tasks is a key component to increasing the general performance of the line level work force (Kerzner and Kerzner, 2017; Hofmann and Morgeson, 1999; Odiorne, 1991). According to Choy *et al.* (2016) the reports of these researchers, the inability of managers and supervisors to effectively delegate and assign responsibilities and tasks is a huge challenge to successful project management.

#### **4.1.5. Training Infrastructures and Established Standard**

Shalleya and Gilson (2004) reported that the failure to modernize recruitment and training can result in skill shortages, higher prices and poorer quality output. There is a long-term trend in industrial change which relates closely to skills and training. Although self-employment and subcontracting provide a flexible structure in terms of response to short-term market fluctuations, they are not conducive to longer-term investment for future growth by firms. Fluctuations in output, smaller size and specialisation of projects make it difficult for individual firms to plan labour requirements (DeCenzo *et al.* 2016). Moreover, frequently short-term competitive pressures lead to poaching of skilled labour and act as a further disincentive to training (Shalleya and Gilson, 2004). For these reasons, few construction firms develop human resource plans; and most take insufficient interest in integrating training into their corporate strategies, where these exist at all. Hou *et al.* (2017) stated that jobsite training offered by some construction organisations and associations is very limited, moreover training facilities that have been established are far from sufficient to the growing standard of construction professionals for industry expansion. So, there is need for creativeness in leading SC application in construction management.

In expressing the lack of a generally known and accepted standards for developing managers' SC, a participant in the interview of this study stated that: *"There is also a lack of framework, guidelines, specialised professional and resourceful trainers and conducive training facilities. Where there are a few, they are usually very expensive"*. The interviewee's expression confirmed the lack of established framework, guidelines, resourceful trainers and facility for development of SC in NCI. The implication of this is lack of acceptable standards and models for the development of managers SC. See how one of the interviewees puts it: *"There are no specialized and recognized professional trainers who are ready to research or work with*

researchers to gain current and future local insight and understanding of the current and possible future challenges of the industry.” By “specialised” and “recognised”, the interviewee meant recognised and licensed by recognised professional or and education institution. This lack of standards and guidelines in the NCI robs it of the credibility and value of training. Because of this, most organisations and PCO sort and develop their own internal training policies, guidelines which are barely tailored to the needs of their construction managers and supervisors, and the uniqueness of the NCI. This lack of a comprehensive and generally accepted framework and guidelines for SC development in NCI means no standard gauge for SC in Nigeria.

#### **4.1.6. Lack of Leading Creativity**

Most managers and supervisors of construction sites do not creatively inspire or encourage their workers (Schuh *et al.* 2018; Chang and Teng, 2017). Many of them prefer the traditional ways and refute any proposal for new practice which kills chances of discovery and learning. Kozlo and Shemshurina (2018) disagreed with this view, and argued that though creativity has already existed for years, more needs to be done, to encourage it. Fostering For creativity to take place, leadership needs to take active role in encouraging, fostering, and supporting creativity (Tang *et al.* 2016). Hence, the role of leaders is to ensure that the structure of the work environment, the climate and culture, and the human resource practices (e.g. rewards, resources, goals, and expected evaluations) are such that creative outcomes can occur. Managers and supervisors forget they are leaders of day to day construction operation, and inspiring and managing creativity is an important responsibility for managers (Schuh *et al.* 2018). Some researchers have submitted that some level of creativity is vital in almost any job (Unsworth, 2001; Shalleya and Gilson 2004). However, there is need to understand that there is a range of what would be considered, as creative outcome which is essential for managers and supervisors who can evaluate and lead creativity. Mumford and Gustafson (1988) described creativity as outcomes that can range from minor adaptations in products or workflow to major breakthroughs and the development of new processes or products.

It is important to identify the roles that leadership can play in encouraging workers creativity (Mittal and Dhar, 2015). That is, most managers and supervisors would say that they would like their workers to be more creative, but it has not exactly been clear how managers and



supervisors should lead for creative performance to follow, which is still a problem at achieving a creative workforce. Therefore, if creativity is desired, project managers can try to hire and train individuals that are more predisposed to be creative for the roles of managers and supervisors. Additionally, they can use a person's predisposition for creativity as a factor in placing them in management and supervisory roles where creativity may be more desirable or critical. Lack of full application of Shalleya and Gilson's (2004) proposal means many managers still lack the creative appetite (Renault *et al.* 2016). It still goes to show that most managers and supervisors are risk averse: it is much easier for them to keep on performing in more routine ways instead of taking a chance with a new, and possibly better, approach ((Renault *et al.* 2016; Shalleya and Gilson, 2004).

#### **4.1.7. Time, Technologies and Environment**

Koivula and Paunonen-ilmonen (2001) in their findings referred to lack of time as one of the problems in SC development. They elaborated that managers working time is not sufficient for work and development and that they are compelled to work under excessive pressure. Again, because of shift work and time pressure, workers fail to find time for skills and competences development (Sanghi, 2016). In some situations, the number of management or supervisory staff is too small in relation to the volume and quality of the projects being executed, therefore, management does not always have time and resources to spare on skills development (Sanghi, 2016).

As Tagaza and Wilson (2004) stated, time is spent on random checks, cross-checks and on-site practices of the new skills acquired, to ensure the applicability and the sustainability of the practices acquired. This practice is essential but still a challenge as managers and workers may tend to forego time-consuming sustainable practices when they are under time pressure to complete a project (Hwanga and Ng, 2013). The inability to manage time pressure and effectively monitor and measure SC attainment could be traced to the level of general education acquired (Sanghi, 2016).

Most construction managers and supervisors, apart from being equipped with a rich range of technological and organisational methods and frameworks, do not understand the specifics of the organisation and work environment in which they work (Doppelt, 2017). They do not know how to cope with emerging situations in which their ranges of methods and

frameworks may be inappropriate; and these existing traditions are always a challenge (Doppelt, 2017). The general infrastructure of their operational base also poses a great challenge (DeBerry-Spence, 2010). The British High Commissioner to Ghana, Gordon Wetherell, in 2007 could not have agreed more when he said that “key issues” and “climate” for skill and economic development must be addressed for any system to achieve good result in development (Palmer, 2009).

Recorded in Weisinger (2016) study for Formtek, a global technology ranking organisation, the construction industry lags other industries in terms of embracing and taking advantage of innovative practices and new technologies. Thus, these compromises awareness in development of SC of managers and supervisors, training cost effectiveness, quality of life and training offered, competitiveness with other sectors and productivity among others. All proposed training curricula needs highlight the need to identify and determine unsafe working conditions, acts associated to an activity, and recognise areas where lack of prevention efforts could lead to accidents in SC development (Hou *et al.* 2017).

#### **4.1.8. Measuring Skills and Competences (SC) Attainment and Reward System**

A significant challenge has been how to measure and demonstrate workers’ attainment of skill outcomes before engaging or assigning tasks to them (Noe *et al.* 2017). Most skill frameworks lack guidance on expected and basic standards of performance for these skills and behaviours in workers as they progress through different stages of their trainings to the work place (Hampson and Junor, 2009; Riebe and Jackson, 2014). As employability skills typically involve a significant proportion of worker selection criteria (White, 2008; Riebe and Jackson, 2014), workers themselves must appreciate, not only the skills they have acquired, but can also communicate and demonstrate to employers how they meet expected levels of development required of them (Riebe and Jackson, 2014). It will be very productive if employers can assess the level of workers’ skills without going through the workers. A further research is needed to enable the employers determine the exact level of workers’ SC (see Section: 10.5.1). It is productive to measure and monitor SC of management members through their commitment, the values they add and the attitude they bring on the job (Noe *et al.* 2017).

Professionalism and best practices is not encouraged in the NCI, and this discourages SC development. Untrained workers (quacks) are hired instead of experts on the altar of

favouritism; cutting cost and avoiding responsibility of training (Ogunyomi and Bruning, 2016). According to an interview participant: *“Best practice is not encouraged; well trained personnel are not assigned responsibilities in areas of their expertise in the industry. Many seek and encourage the services of unskilled and untrained workers in the industry, so why would anyone bother to develop or improve their SC in a market that does not patronise skilled and trained professionals.”* Another participant stated that *“the reward system is poor; most construction managers are underpaid and under motivated. Many organisations subscribe to the use of contract staff, which is cheaper but then they deliver cheap and substandard projects as they lack trainings, motivation and rewards. This orientation forces most of the young managers to focus on financial benefits from a project instead of experience.”* It is evident that the current reward system in NCI does not motivate managers and supervisors to develop their SC, corruption and shunning of ethics in the construction profession is the current practice and it has direct negative impact on the project outcomes. Separation of professional disciplines is not the popular practice in NCI. Nigerian construction professionals take up responsibilities outside their field of specialisation, making them quacks. There is strong advocacy from participants of this study for the discontinuation of quackery in NCI, for the industry to be reckoned among the best in the world.

#### **4.1.9. Commitment, Values and Unguaranteed loyalty of Employees**

Martin and Nicholls (1987) define an individual’s commitment as the willingness to contribute much more to the organisation than their prescribed contractual obligation. Also, Merriam–Webster defines commitment as the act of committing to a charge or trust. Tagaza and Wilson (2004) found out that once the enthusiasm of managers and supervisors, or any other construction professional is low on any aspect of work, their results and performance is directly low. Tagaza and Wilson (2004) also pointed out that problems such as the managers and supervisors’ attitudes and values, which were demonstrated in their lack of commitment to common goals and objectives and in neglecting to develop their own professional SC showed a resistance to change. Resistance to change is best expressed in the managers’ reluctance in sticking to routines and active resistance. Staff’s resources were also found to be a problem because some of the managers suffered from work exhaustion (Freedy and Hobfoll, 2017). Managers’ exhaustion by age and mental fatigue and managers’ activity levels and motivations vary significantly at different times, which complicates systematic

development of managerial and supervisory skills (Koivula and Paunonen-ilmonen, 2001; Freedy and Hobfoll, 2017). Interest amongst managers and supervisors in any form of training they are to undergo is very important. For instance, managers and supervisors' resistance to changing their traditional practices or upgrade has been the most critical challenge faced by trainers and project managers before and during trainings (Hwang and Ng, 2013).

Another major challenge is the concern of losing a staff to a competitor after training them. After the training, due to the investment made by their employers, there is a serious concern that this trained worker could continue to search for greener pasture and a higher bidder to sell his/ her new SC to, to the detriment of their current employer. This discourages the employer from funding any major development for employees. An executive director of a firm, who participated in the interview asked "*what guarantee do we have that after investing this huge amount on training, that they (employees) will not move to our competitors when offered higher pay*"? This opinion was corroborated by the fact that 56% of the survey respondents have spent less than five years in their respective organisations (Table 3.7). This concern was shared by all five executive directors (employers) who participated in the interview, while the middle and front managers (employees) do not see it as an issue. Implication is that organisations in NCI will continue to worry about the future of their professionals after funding their SC development. This lack of commitment must be addressed as majority of professionals in NCI (Section 4.12) has affirmed the employer as the sponsor of SC development, it is very imperative to address this concern.

#### **4.1.10. General Education and Knowledge Sharing Culture**

Majority of professional construction managers in Nigeria possesses degrees and advanced degrees as shown in Table 3.7 survey result and this study, supported by previous studies (Abidoeye and Chan, 2016; Inuwa *et al.* 2015). This is different from the situation Koivula and Paunonen-ilmonen (2001) found in their research that managers and supervisors had a low level of education, which hinders the development of SC. Managers with low level of education feel less valued than their well-educated counterparts; a situation, which if not well addressed, may affect their performance during any skill training or SC development they undertake (Hwanga and Ng, 2013). Secondly, low level of general education mainly causes inadequacies in learning and knowledge development (Viswanathan *et al.* 2010). Another major educational challenge is the time it takes to finish a degree in construction or project

management; the shortest one is the masters programme, which takes at least two or three years in Nigerian academic structure. According to Xiea *et al.* (2013), the industry may not be able to afford to wait for so long until students graduate with a degree. Secondary to this, is the high cost of education in Nigeria as there is no functional student loan structure (Ahmed, 2015). Even the Council of Registered Builders of Nigeria (CORBON, 2011) and construction site management for builders as cited by Jimoh *et al.* (2017) approved that a small construction site can be managed and supervised by a trade foreman who does not have professional education. As indicated by Jimoh *et al.* (2017), small building construction projects consist of mainly residential buildings. It is widely believed in the NCI that what these managers and supervisors lack in proper education, they make up for in their long experiences in the industry.

As a support strategy, a lot of companies also expect and enrol their managers and supervisors in regular short-term courses annually (Dave *et al.* 2017). Take China, for instance, where similar challenges exist in their wind power sector. By the end of 2011, over 200,000 managers were hired directly or indirectly in the various sectors of Chinese wind energy industry. Almost all of them have no previous wind energy education background and are taking short-term or long-term wind power managerial training courses. It is a huge market for training centres in China and funding of such trainings is also a challenge. Obviously, the number of training centres is inadequate and the Chinese government is aiding further expansion and strengthening of the training centres (Xiea *et al.* 2013). The Nigerian government can borrow a leaf from this practice.

Secondly, the lack of knowledge sharing orientation and visionary leadership at the top of the industry is one of the huge challenges associated with the development of construction management (Arif *et al.* 2017). This is one view shared by all the 30 participants in the interview. They shared the opinion that; there is no orientation for proper and structured channel for transfer of knowledge from more experienced and skilled senior managers to less experienced and skilled fresh managers. According to one of the interviewees; *“the knowledge, skills and experiences of the senior managers retire with them while the next generation start from the avoidable struggling stages to build their own experiences”*. This is unacceptable as knowledge is a continuous development and should be built on as recommended by CKT (Continuous Knowledge Transfer) of European Patent Office

(Schombacher *et al.* 2016). The lost for managers, organisations, HR managers and the NCI is immeasurable, as knowledge that could have been transferred or shared are lost to deaths and retirements.

#### **4.1.11. Information, Communication Management and Internal Management of Resources**

Managers recounted the problems they had with information acquisition, either between operative units or at their own management level (Noe *et al.* 2017). To be successful, managers need to manage information and communication with many suppliers, subcontractors and project team members (Kerzner and Kerzner, 2017; Senaratne and Ruwanpura, 2016). Communication is particularly critical for any construction skill development, as this is the only way to convey the sustainable practices expected between trainers, managers, supervisors and team members (Banihashemi *et al.* 2017). Ineffective communication creates lack of understanding of the real interests of team members before skills development (Hwang and Ng, 2013). It was discovered, that most trainings and development is faced with a huge risk of failure when the project manager and the trainers do not manage the large amount of information and team members who had been trained effectively. Communication is especially critical in the training and development of supervisors and managers to convey the updated and sustainable practices expected of the trained team members after the training (Hwang and Ng, 2013).

Among the challenges found by Koivula and Paunonen-ilmonen (2001), they observed and described the flaws in their own resources and capacities. In some situations, they recognised that they had no tools to carry out their operations. They, through the managers assessed that the managers and supervisors' lack of interest and knowledge inhibited the development of more SC. They discovered that managers spend too little time and effort to plan the task, its development, reacquired skills and its acquisition.

Other management problems in organisations include working conditions, working times and access to information (Noe *et al.* 2017). In some organisations as well as projects, work is based on shift, which according to the managers makes it difficult to assemble the staff and disseminate information. Unhealthy or unconducive working environment also impede skill development within the organisation (Jumah and Sulo, 2018). Some managers that participated in the semi-structured interview of this study were also of the view that cutbacks

and economy of the organisation also complicates the development of SC through budget and allocation of resources.

#### **4.1.12. Political Interference, Regulations and Policies**

According to Bhattacharyya's (2010) report, most of the policies and regulation are not updated on time and obtaining permissions from relevant authorities and institutions often take a long time and this is a deterrent for any advance update of skills and competences project. This is not a Nigerian problem alone. India (Bhattacharyya, 2010) and the United Kingdom (BERR, 2007) face similar challenges.

Understanding government policies and institutionalized guidelines related to construction management is also vital and was ranked highly. These policies and regulations are designed to foster best practices in skill acquisition, protect human health and ensure environmental issues; failure to comply may cause delays, termination of skills development or fines. Even though professional trainers are involved during most of the skill development programmes, it is vital that project managers have a good understanding of the guideline, policies (Hwanga and Ng, 2013). This will help in planning and managing these challenges.

There is a lack of strong government support to implement and enforce some of the SC regulations that require government backing and enforcement (Kaufmann, 2017). According Kaufmann (2017), government political interference kills best practices. Government, through its agencies, interfere in the professional standing of the industry through the influence of regulatory agencies. Kaufmann (2017) emphasized that there is no enforcement of strong legislative backings for reasonable policies that will strengthen the development of SC in the industry. Areas of enforcement of the existent laws and policies are yet to receive strong government support. This view was shared by thirty of the interviewees. They emphatically stated that government interference through regulations is not good for the industry. What the industry needs from the government is support and backing. The government should allow the professional bodies to lead in formation, shaping and enforcing policies and standards that affect the construction industry in Nigeria.

#### 4.1.13. Research, Strategy, Planning and External Challenges

For the leading business and management schools, most if not all, note that their unique focus area is “strategy” and “leadership” (Doh and Stumpf, 2007). While this does not sound like a unique focus, it demonstrates the importance given to strategy in organisations (Söderlunda and Maylor, 2012). Improving efficiency in SC development has been an area of great interest for both practitioners and researchers for some decades now and is sought to be accomplished through various measures (Govers, 1996; Yamashina et al., 2002; Piedras et al., 2006; Zirger and Maidique, 1990), these include implementing information technology solutions that enhance the awareness of updates on SC (Durmusoglu and Barczak, 2011), as well as restructuring the organisational structure (Gokpinar et al. 2010) among others. Generally, few project practitioners and researchers have given some attention to the actual challenges experienced by practitioners in managing construction projects (Sommer et al. 2014). As Hwanga and Ng (2013) opined, most challenges faced by organisations during SC development programmes are planning-related. Planning is a long-time requirement for the pre-development process; and it has proven to be one the most frequently encountered challenges during skill development. These challenges change and get more challenging over time because of the complicated nature of construction projects.

According to Kubba (2010), over time, building projects progressively incorporate more advanced and intricate systems. A failure to consider the integration of construction technologies and its impact on skills development elements results in confusions and conflicts, which in turn leads to delay to address such problems before SC development. The reason is due to the need for a more detailed and comprehensive skills development plan, which incorporates all features required by the current construction practices (Kerzner and Kerzner, 2017). This means more involvement and interaction with different stakeholders, which is also likely to slow down the pre-skills development process. Managers must have the ability to assess the factors at hand and come to the best solutions for the project (Kerzner and Kerzner, 2017).

External challenges can impact SC development in many ways. Mostly when faced with unforeseen circumstances, according to Bolden (2016), project managers or organisers of SC development may not be equipped with any prior knowledge or experience to handle the situation and steer the development to a successful outcome. This unforeseen change poses



considerable challenges to the project managers in rescheduling the SC development process according to any new development (Hwanga and Ng, 2013). Another big challenge is the number of managerial and supervisory skills training centers are still small compared to sectors like finance, oil and gas, power (Xiea et al. 2013). Findings from this study revealed lack of interest in many organisations to sponsor research in the NCI. Researches helps in formation of strategy. Lidelöw and Simu (2015) cautioned construction professionals against not researching and recommended that they should plan their operations strategies with a focus on organisation, quality, human resources development and planning.

#### 4.1.14. Skills and Competences (SC) Development is Expensive and Lacks Sponsorship

This study was designed to gather the perspectives of construction professionals in Nigeria on the current challenges associated with developing and applying some of the listed SC in the industry. Hong et al. (2018) identified cost of SC development as one of the challenges. From the results of the survey conducted, Table 4.1 shows that over 66.2% of respondents are of the view that the training is expensive. Investigation during interviews revealed that most organisations lack the interest to develop SC of their employees and that the employees cannot afford the training own because they have marked them as “expensive”.

Is the skills and competences development expensive?					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Yes	102	65.8	66.2	66.2
	No	52	33.5	33.8	100.0
	Total	154	99.4	100.0	
<b>MISSING</b>		1	.6		
<b>TOTAL</b>		155	100.0		

**Table 4.1 SC Development is Expensive.**

From the result published in table 4.1, the perspective of managers in the NCI are of the view that the cost of SC development is expensive for them. The implication of this result is that managers being left to bear the responsibility of funding their SC development will yield no desired result as 66% of respondents indicated that SC development for managers is expensive. Their position was further emphasized by exonerating themselves from sponsoring their SC development and instead transferred the responsibility to their

employers with, perhaps, support from government as shown in Table 5.6. What this means is that organisations, HR managers, training providers will need to focus on how to secure sponsorship of SC development from employers and not employees. During the interviews, a participant stated that most private and public companies do not comply or commit to training needs of their managers and supervisors. Hence, training lacks the required sponsorship. The companies do not have the sense of commitment to invest and improve the competences of their managers and supervisors. They do not consider it a worthy investment as they are more interested in maximizing profits on every project.

Lack of comprehensive strategy on how to achieve employers' sponsorship of SC development which is marked as "expensive" by managers and supervisors, will mean low numbers of qualified professionals with updated SC managing Nigerian construction projects. 100% of the participants of this research study indicated that SC development directly influences project outcomes in the NCI. This was discussed in section 6.7 of this study. For the NCI, lack SC development as a result of expensive SC development programme will damage the image of the industry as is the current case of the NCI, were recent newsflashes of the incessant building collapses is regular across the country (TVC News, 2019; ChannelsTV, 2019; AIT, 2019; Punch Newspaper 2019; Vanguard Newspaper, 2019; Thisdays Newspaper, 2019).

#### **4.1.15. Project Budget, Corruption and Ethical Issues**

One participant averred that *"under-priced projects and greedy contractors mean no room for training of engineers, managers and supervisors working on the project."* Another participant noted that: *"due to stiff competitions because of the state of the economy, some projects are under-priced, which puts the contractors in a financial fix and greedy contractors do not want to spend the approved percentage on training of their workers engaged on the project."* This means that under-priced construction projects have direct implication and directly undercut training budgets of large construction projects in Nigeria.

Another interviewee, who is a director in the ministry responsible for construction related developments in Nigeria, said this about corruption: *"corruption is one of the major challenges that hinder the development of SC. The right people are not given the right opportunities; rather, there are constant cases of tribalism, nepotism and shady practices. Budgets on trainings are carted away for personal aggrandisement. Recruitment and nomination for jobs and training are*

*based on family and social ties not on professional qualifications. In most cases, your state, local council of origin, religious and political affiliation play far more important roles than your professional qualification, skills or training.”* The participants went further to reveal how the code of conduct for public and private employees have been shoved aside for more selfish financial rewards. This implies that the right people are not selected for the needed SC development in the NCI and this practice impact negatively on the outcomes of construction in Nigeria.

#### **4.2. Summary**

This chapter has presented the complexity of challenges associated with SC in practice. It, through the literature, recognised lack of effective communication and teamwork as the most severe challenges associated with practicing SC, followed by lack of proper planning, scheduling and directing, agreement and conflicts, followed by lack of leading creativity and, the last but not the least, failure to modernise training infrastructures. Challenges and issues facing the development of SC in the construction industry, especially in a developing country like Nigeria, are numerous, just like in any construction industry around the world, even though they are less manageable in developing countries. Findings of this research revealed some of the challenges of developing SC in Nigeria. They include: expensive SC development and lack of sponsor, lack of professional engagement and reward system, corruption and ethical issues, underpriced project budgets, political interference and support, lack of established training standard, lack of knowledge sharing and the unguaranteed loyalty of trainees.

Not enough has been written on dealing with these current challenges in the NCI. Stakeholders in the industry and the government have a big role to play. Klakegg *et al.* (2008) suggested that governance functions should include setting clarity in priority, designing an unambiguous decision-making process, making resources for planning and development available for training, ensuring that quality training design is deployed. With the current challenges, evidence from this study suggest that government should lean right behind the professional organisations in policy making for regulation and enforcement in the industry. For their part, professional construction organisations should ensure that researches are encouraged in this area for the mitigation of these challenges and development of an effective approach. The next chapter evaluates the existing SC development approaches.

## **Chapter 5:**

### **The Skills and Competences (SC) Development Approaches: Effectiveness and Good Practice**

#### **5.0. Introduction**

In Nigeria, organisational commitment and employee competences are significantly determined by employee participation in SC development (Odumeru and Ilesanmi, 2015). Managing construction project is a complex process that aims to achieve multiple objectives. Developing SC is essential to successfully manage this complex construction process. It requires the acquisition of a variety of skill sets that often cut across areas of expertise. Skills development is a function of knowledge input gained in a diverse professional discipline and training (Ameh and Odusami, 2014). This chapter looks at the current approaches of acquiring these skills and identifies training as a main approach, sourcing and studying internet provided knowledge as another approach to development of construction management SC in Nigeria.

#### **5.1. Skills and Competences (SC) Development Approaches by Higher Education Institutions in Nigeria.**

Russell and Stouffer (2003), Dulaimi (2005) and Ameh and Odusami (2014) all agreed that many engineering and construction degree programmes designed to produce construction professionals are not specifically tailored to educate their students to become skilful and competent project managers as they tend to only emphasize technical skills. However, Odusami (2002) identified and revealed that leadership, decision-making, motivation and communication skills are the most important SC in effective management of construction projects. And these skills are not technical but social or human and are much needed in today's construction management (section.2.3).

According to Ameh and Odusami (2014), their investigation revealed that of the 106 universities in Nigeria, none offered an undergraduate degree programme in construction management. University of Lagos, Federal University of Technology Minna, and Federal University of Technology Owerri offer project management programmes broadly. Thomas and Mengel (2008) argued that educational and traditional training which focuses merely on knowledge transfer and intellectual competences does little to enable project managers

understand and deal with the level of uncertainty that today's projects inevitably present to them.

## **5.2. Development and Improvement Approaches of Nigerian Professional Bodies**

Results of study conducted by Detsimas *et al.* (2016) suggested that employees of the construction industry are generally very conscious of the importance of onsite and workplace training in developing their career. And they immensely appreciate training as being a critical factor for the successful development of their SC to effectively perform their roles and responsibilities, and to sustain their knowledge and employability. The universities are no longer the only source of SC development in Nigeria. The traditional education and training focusing merely on transfer of intellectual and technical knowledge does not sturdily solve the current challenges that construction management present to project managers, and a new approach that addresses today's challenges is needed to manage them (Noe *et al.* 2017). Despite the apparent shortcomings in the education of construction professionals in project management knowledge, SC, most consultants in the business of training Nigerian construction professionals, still combine project management practices with their primary responsibilities. They use project management SC as the icing on training operatives in their core technical areas. Hence, the training is deficient in the core skills and competences for managing successful construction projects. The industry in Nigeria has been programmed to view project management SC as 'being soft' and as such can be learnt and taught by everyone, not minding the fact that the project managers' SC are main contributing factors to successful project delivery (Ameh and Odusami 2014). There is absolutely nothing wrong with blending basic project management with other construction professions. But to train successful construction managers, SC identified and tailored strictly to construction management should be developed amongst construction managers.

In view of the perception that construction managers' SC are contributing factors to construction success in Nigeria (see section 2A.3), this study investigated how groups, association and institutions like the Council for Regulation of Engineering Practice in Nigeria (COREN) and Nigerian Society of Engineers (NSE) with her subsidiaries like the Nigeria Institute of Civil Engineers (Section 3.4.1) are assessing construction management training to improve and update the SC of their members.

The evidence from this study revealed that the SC for construction management in Nigeria is influenced by the industry and the requirements of professional bodies or institutes that regulate the practice in Nigeria, such as the Nigerian Society of Engineers (NSE) and the Council for Regulation of Engineering in Nigeria and their subsidiaries; for example, the Nigeria Institute of Civil Engineers (NICE). Armeh and Odusami (2014) went further to demonstrate the approaches and requirements for developing SC for a civil engineer in Nigeria. They referred to Project Management Institute (2002), which stated that the project management competency development framework drew three dimensions of competence, which are: knowledge, skill and behaviour. And Crawford (1997) had similarly stated that for project managers to be referred to as competent, they must possess the "right" combination of knowledge (which is what they know about project management), performance (which is, what they can do and accomplish while applying their project management knowledge) and then personal competence (which is, how the individual behaves when executing the project or activity; their core personality traits and attitudes). These were detailed as:

1. **Managerial skills:** The construction manager and supervisor should have clear general business skills, which should include the following: (a) A full understanding of the organisation and the business. (b) A full understanding of general management, contract work, marketing, purchasing, personal administration, law and concept of profitability. (c) Ability to translate business requirements into project requirements. (d) A strong, active and continuous interest in training and developing subordinates.
2. **Behavioural skills:** construction managers and supervisors need solid behavioural and interpersonal skills. To be precise, they must have the following attributes: (a) Be an active communicator and active listener, and able to exploit informal communication channels to drive home their messages. (b) Master the act of questioning to offer clarity and paraphrasing to ensure that verbal messages are well understood. (c) Know how to promote team spirit, build trust and reward communication through credit and praise.
3. **Technical skills:** To make informed decisions, construction managers and supervisors must be able to have a grip on the technical aspects of the project. Although managers and supervisors seldom perform technical analysis, they must be technically good and have the capacity to articulate and make good technical judgements as members of project leadership. Managers and supervisors must be able to integrate and analyse, and they must understand

the rigorous nature of training professional technologists, which stresses analysis and sometimes could impair their ability to integrate (Ameh and Odusami, 2014). An important key that influences these three processes is communication, both formal and informal.

### **5.3. The Effect of Informal Communication Approach in the Nigeria Construction Industry (NCI)**

Outside the formal and organised communication pattern, there exists an informal form of communication in Nigeria, widely adopted by some smart communication experts in construction organisations known as the informal communication system. According to Wilson and Ibietan (2013), the informal system offers the necessary communication outside the established formal system, known and formal lines of authority. In Nigeria, this is helpful and important to maintaining organisational linkages, to fill in the gaps, omissions and more explanation of the formal system. This type of communication is ordinarily limited to oral face-to-face or through telephone but with the availability of mobile internet and social media apps, a significant part of it has moved online.

In most organisations in Nigeria, both private and public, a lot of informal communication occur as rumours and gossips and can today be done using social media apps like Facebook, WhatsApp, flowing along ethnic cliques and other sectional interests and associations. It has a speed advantage over formal communication. Informal communication in any organisation serves as a device or a medium for evaluating management by their subordinates, since the formal communication channel does not provide for such actions. It is not unusual to see managers displacing the formal channel of communication with the informal mode, which in extreme cases, if not controlled, could be very destructive in consequence.

Wilson and Ibietan's (2013) finding stressed that socialization is an important aspect of communication, especially, the informal channel of communication in any organisation. It is used as one of the tools to achieve the organisational goals. Socialization and orientation are the processes of ensuring the introduction and induction of the personnel to the policies of the organisation, and is the first step in training and development of SC (Patterson *et al.* 2017). Through this socialization and induction, which usher in the platform for informal communication, employees also learn the culture and tradition of the workplace, its policies, their responsibilities, expected behaviour and team relations (Patterson *et al.* 2017). Informal

communication in Nigeria makes personnel more open and expressive. This facilitates the learning process, as there is better cooperation and understanding of instructions, mission statements, objectives and goals of the organisation. It makes it easier for employees to internalize the values of the organisation (Greenhow and Lewin, 2016).

#### **5.4. How Professions Are Rated in Construction Management Skills and Competences (SC) Development**

The results of study conducted by Armeh and Odusami (2014), corroborated that of Ogunsemi *et al.* (2008). Both compared the project management SC of Nigerian construction professionals in terms of basic SC, core and optional competences. The two studies concluded that the quantity surveyors' group was observed to be the most skilled and competent in project management practice, having 79% training in basic, core and optional competences in project management. They are closely followed by the estate surveyor and builder's group with 78% each. The architects' and civil engineers' groups were behind with 76% and 70%, respectively, in basic, core and optional training in project management competences. This relatively low ranking of the civil engineering group compared to other professions is a support to the survey conducted by Russell and Stouffer (2003), which concluded that civil engineers are ordinarily not seen as effective and competent project managers.

While other professions have their deficiencies in areas such as finance and accounting, industrial skills, information technology, design and technical skills, civil engineers' group was noted to be deficient in all the core project management related SC, except information technology. They have their major SC in core technical areas like quantitative method, structural analysis and design. This is one of the reasons why this study has selected civil engineers from the pool of other construction professionals.

Currently, in view of the absence of a professional organisation charged with the responsibility of regulating the practice of project management in Nigeria, Armeh and Odusami (2014) recommended the review of the current educational provisions of undergraduate programs in all the universities offering the relevant construction disciplines to ascertain the extent of coverage of the project management SC. It is not yet ascertained if these recommendations are currently being implemented. But this research identified more ways in which SC are being developed and improved in Nigeria.



### **5.5. Current Good Practices in The Nigerian Construction Industry (NCI)**

In Nigeria, different areas of deficiency and development approaches exist for each professional group in project management. For instance, Dada and Jagboro (2015) found that quantity surveyors in Nigeria have competences listed as 'core' or essential and 'basic', and they advised that these competences be acquired by managers immediately after graduation from tertiary institutions and in their first five years of on-the-job training. By the authors classification. Basic skills are those common skills which are required of engineers and all other construction professionals, while the core skills are those uniquely required of quantity surveyors and individual professions. They further explained that several other competences are specialized and therefore optional but might be acquired by quantity surveyors working on a project in a specific area which is also obtainable in other construction professions.

This study examined different ways of developing and improving the basic SC required by managers and supervisors in construction, irrespective of their educational background. First, some of these skills are being included in the curriculum of studies of each discipline at the undergraduate level in Nigerian universities. Secondly, professional bodies like the Nigerian Institute of Architects, Nigerian Institute of Builders, the Nigerian Institution of Estate Surveyors and Valuers and Nigerian Society of Engineers - Nigerian Institute of Civil Engineers can include some of these courses in their mandatory continuous professional competence studies and examinations. The third option is for managers and supervisors to belong to any of the existing construction professional organisations like NSE, NICE, COREN, NIA and others, where such individual can seek knowledge through some of the SC courses being taught in these organisations under their continuous professional development programme, which is mandatory for all construction professionals and is currently being organised regularly by the regulatory bodies of these Professional Institutes in Nigeria.

According to the findings of Armeh and Odusami (2014), only University of Lagos offers project management at the master's level for construction professionals in Nigeria. The master's programme in project management offered by Federal University of Technology Owerri is relatively broad. Some other universities, especially high-profiled universities like Ahmadu Bello University (ABU), Obafemi Awolowo University (OAU), University of Ibadan (UI) and University of Nigeria Nsukka (UNN) should also start a project management programme in either their Faculty of Engineering or Faculty of Environmental Sciences,

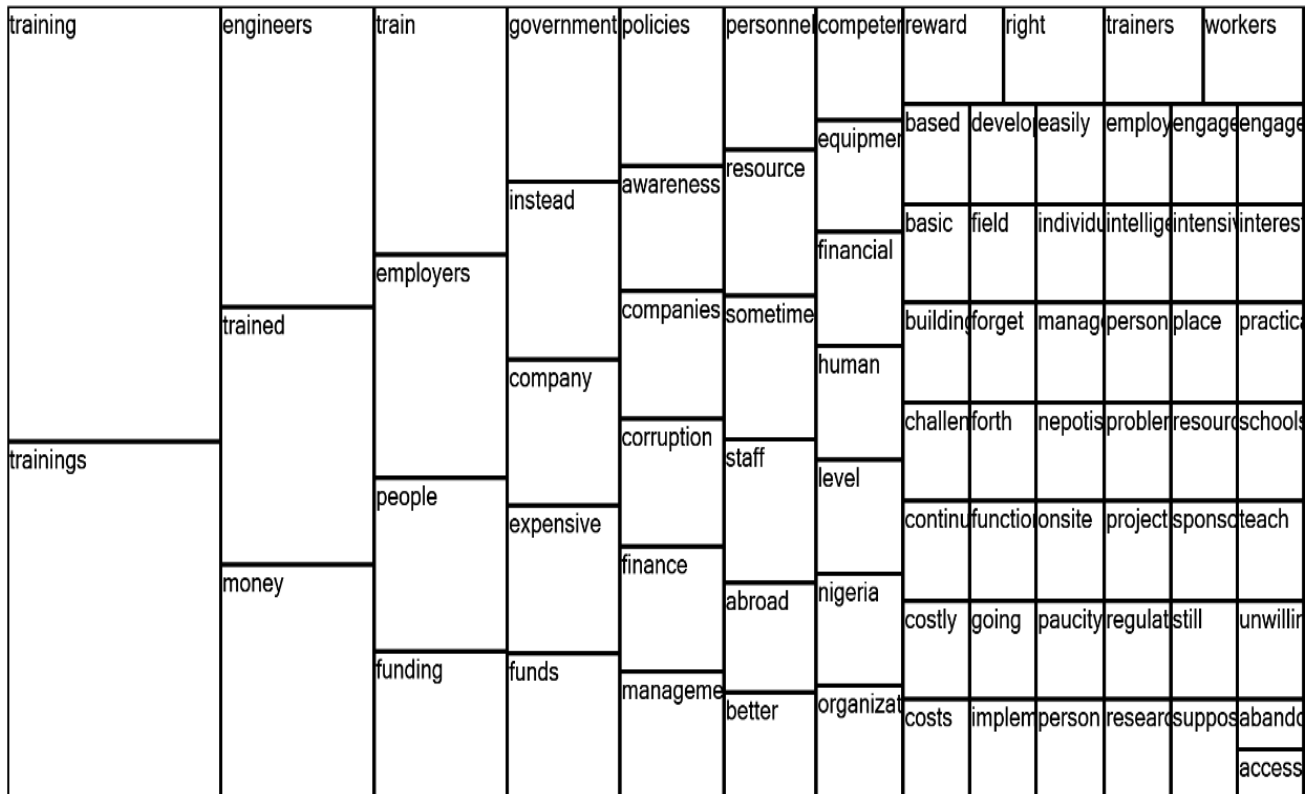
specifically for the construction professionals at the postgraduate level just as Federal University of Technology Minna recently started. As at today, there is no professional organisation that regulates the practice of project management in Nigeria. Armeh and Odusami (2014) in their work also proposed that with full legislative backing, a professional body called Institute of Construction Project Managers (ICPM) be established. The institute will oversee and regulate the practice of project management in the Nigerian construction sector.

SC development is directed towards future needs of an organisation, it is concerned more with career growth than immediate performance of manpower. It is established that SC development focuses on organisation's future skills requirements and employee's growth needs to strengthen the managerial SC to properly equip the managers to appropriately respond to the ever-changing construction management industry. The common principle linking each of these three development and improvement activities is the acquisition of knowledge, understanding SC, attitudes which derive from the organisational manpower policy objectives, and dependent on partnership and synergy between the organisation and educational, professional and research/development centers.

Currently, because of high unemployment rate, Nigeria is encouraging entrepreneurial approach in the development of SC. Bae (2014) defined entrepreneurship as an education provided to empower the youths as a means of development of the total man or woman who is confident, analytical, creative, innovative, self-sufficient, independent and capable of reacting positively to the risk of business entries. Some tertiary institutions in Nigeria offer technical and vocational education (Ogwa and Ogbu, 2015) to reduce the unemployment and increase entrepreneurial practice in construction management.

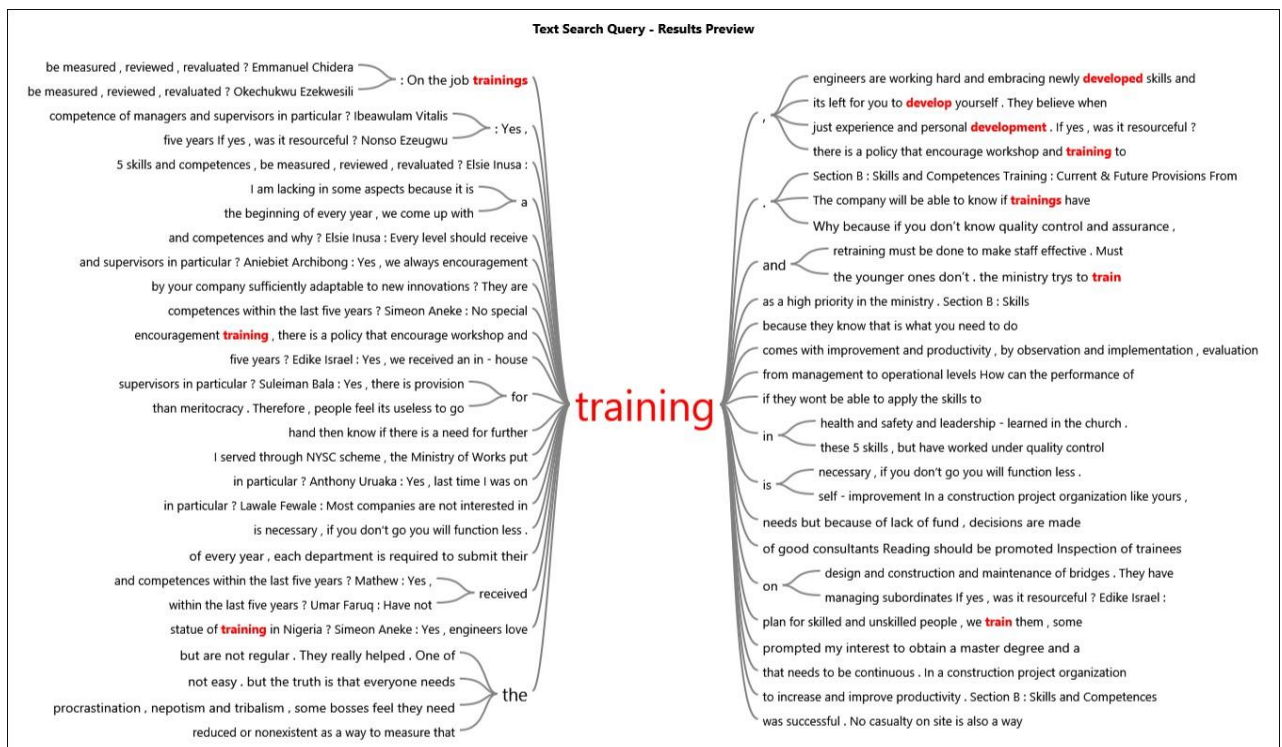
## 5.6. Analysing Skills and Competences (SC) Development Approaches Practiced in The Nigerian Construction Industry (NCI)

### Word Frequency Query



**Fig 5.1 Training is the Construction Management SC Development Approach in the NCI.**

From the tree map above (figure 5.1), the big and repeated cubes indicate that all thirty (30) of the respondents mentioned the word ‘training’ or ‘trainings’ when asked about SC development and improvement approaches practiced in Nigeria. Other words that were mentioned include ‘management, project, engineers, skills, control, innovations and quality’ but training was dominant. This indicates that all the respondents consider training as the SC development approach being practiced in the NCI. This implies that training is the SC development approach in the NCI and individual managers, employers, professional construction organisations and regulatory agencies in the NCI should train managers and supervisors to develop and improve their construction management SC. According to Lacerenza *et al.* (2017), training is a programme that have been systematically designed to develop and improve abilities, skills, competences, knowledge, and other components. To probe more for further understanding of the views of the respondents on training, a query ran on NVIVO with the word ‘training’ shows on the page labelled Figure 5.2.



**Fig 5.2: Training is the Construction Management SC Development Approach in the NCI**

In Figure 5.2 above, a search query was issued in NVivo to know what respondents said about “training” which was the most frequent when a search for the SC development approach in NCI was initiated to see respondents’ views. A line of sentence across “training” marked in red, reflect a respondent’s response while describing training as an SC development approach in Nigeria. In Table 6.1, comments and observations of respondents on training as an approach to SC development and improvement were listed and the participant code numbers were used to identify and codify the comments according to the respective respondents they are credited to.

APPROACH	RESPONDENT CODE NO.
...last time I was on training on design and construction and maintenance of bridges. They have that for capacity building of staffs. From time to time, depends on provisions from the budget, the ministry sends people abroad for masters and PhD and all that. Even locally, they send people to trainings that will increase the capacity of performance of the work. It is part of the policy framework of the ministry to train its staff.	01
... as an engineer/professional you should go out there and develop yourself, you don't wait for someone to train you. Yes, I have trained in all (identified important skills and competences) in the last five years. Depending on the	02

project at hand, the company should assess the project at hand then know if there is a need for further training. The company will be able to know if trainings have impacted on the trainees through the project output.	
Assembled the team, the architect, civil engineer, technicians, project engineers and other key project staff on site would have to undergo the trainings. When fund is a challenge, the heads of each unit should be trained to train other members of their respective units. Because they should key in to achieve overall success of the project.	03
We have continuous professional trainings and adopt innovations. The engineer is trained because he is the chief supervisor, the headman. It is cheaper to train the engineer who is also the project manager and have him transfer the knowledge to others.	04
We adopt an approach where the most experienced or trained staff train the less and most times, the less experienced and less smart are paired to work with more experienced staff to enhance them on the job development.	05
In area of quality control and assurance, we were trained on how to sample test for concrete lab analysis, how to conduct crushing test and report writing as well.	06
... in-house services trainings for special staffs. I have received trainings on team building, quality control and assurance, site security, public relations.	07
Head project management, Heads of departments should be trained to train others. Otherwise, if the head is not trained then the whole body is affected.	08
Assess the skills and competences before and after the trainings. Give the HoD (Head of Department) managing charge, if they were controlling three people before now allow them to control 10 (Ten) people and see how they do. Make sure each HoD is trained and then quality control is done to make sure their assignments have been done well.	09
Project Managers - they are the head of the site therefore they should understand better than anyone else, like engineers, and foremen since they work directly under the engineers and work closely with the workers.	010
Training comes with improvement and productivity, by observation and implementation, evaluation and assessment. At the beginning of every year, we come up with a training plan for skilled and unskilled people, we train them, some even travel abroad to be trained. For instance, if there is a new equipment, the operators travel to the manufacturer to be trained on how to operate the new equipment.	011
At the beginning of every year, each department is required to submit their training needs but because of lack of fund, decisions are made by the top management on which to sponsor. Site managers should be trained so that they can train others.	012

One of the training prompted my interest to obtain a master degree and a PhD. We do continuous trainings; in engineering and management, you learn every day. In every NSE meeting, there is always a technical session, workshop, etc. Project manager, site manager, project engineer, construction manager should be trained because they are the key personnel for project delivery. They understand the project more than anyone and are responsible for project failure.	013
Everyone, especially, the Managing Director and project manager should be trained. Knowledge transfers through working with senior professionals that help build up other workers. Training and retraining must be done to make staff effective. Our organisations must train regularly so that staff will give the company what we want.	014
We have quarterly in-house training on Safety, Managing subordinate workers. Health and Safety use of records to review accidents, deaths, and drawbacks. Financial sources can be reviewed by the directors to make sure money is sustained. Time management is scheduled by project managers. Leadership qualities can be adjusted based on measurements and reviews of each leader.	015
We received an in-house training on managing subordinates. Team leaders should be used to monitor and measure team members' performance, so team leaders should oversee this. We are open to innovation that is why we recommended to the management for retraining of some staff and even for managers and even the MD.	016
The Project Managers, Site Engineers and Foremen. Although the technicians are key, they tend to be more focused on just doing their work. They need to be managed to achieve maximal efficacy. To be honest, it is not cost-effective and economically possible to train everyone, including the technicians. It is best to train the people who will be managing the technicians and others.	017
We adapt to new innovations. At the beginning of every year, each department is required to submit their training needs but because of lack of fund, decisions are made by the top management on which to sponsor. The Ministry of Works put training as a high priority in the ministry.	018
Yes, annually, trainings are attended within and outside Nigeria. At least 6 national trainings per year within Nigeria and every two years are selected to go abroad. MD, Project manager, project supervisors. They must be trained in those skills (identified important skills) so they all can be working toward the same direction for easy decision-making process.	019
I encourage young engineers to get registered with NSE and in the process, get trained. I happened to have finished my MSc in UNN, on construction management. I had to read loads of journals, attend seminars. Making sure	020

required tests are carried out, machines are in good shape. The society is dynamic and the company should be flexible to know there will be better ways of handling things every couple of years and therefore must adapt to the changes.	
Yes, there are always new things to acquire and learn during the trainings. On the job trainings. Training of good consultants. Reading should be promoted. Inspection of trainees and trainers. There should sensitization on all these 5 skills. Quality control should be test based. Supervision should be practical, taken to sites to observe how supervision is done. Communication, costing and estimating, engineers should read.	021
Companies don't have any structure for innovation but Nigerian Institute of Civil Engineers NICE under NSE are adaptable to new innovations. Personnel to be trained include but not limited to Project Manager, Project engineers, quality control manager.	022
Safety department holds seminars; Project Managers attend meetings as well. Company has attended two conferences. Received training in health and safety and leadership-learned in the church. We always go for the best and latest.	023
Project staff is not trained but they should be since they do all the work, permanent staff receive training. Training is necessary, if you don't go for training, you will function less. Training is self-improvement. They are training, engineers are working hard and embracing newly developed skills and software. Engineers love training because they know that is what you need to get the job done.	024
Everyone is to be trained. Normally because of procrastination, nepotism and tribalism, some bosses feel they need the training and the younger ones don't. The ministry tries to train everyone but you know it's not easy. But the truth is that everyone needs the training. Why because if you don't know quality control and assurance, you cannot guarantee quality, if you don't know how to supervise others, you will be an unfriendly person. If you don't know communication skills both oral and written, you cannot communicate your ideas and nor write your reports. If you don't know time management, you will create job stress. If you don't know costing and estimating, you will acquire more bills and approve uneconomic and unrealistic quotations. And there is a huge disconnect between the engineering and management skills and these skills help bridge the gap.	025
We have policies that ensure that our ICT systems are updated. The government rewards new innovations and discoveries as stated in by the civil service rules. Training ensure that upgrades and innovations are learnt. Without these learning these skills, you won't even notice the gap and need for innovations and upgrades. Mainly the Heads of Departments and those	026

on Managerial levels should be trained and they should in turn pass on the knowledge to their department members.	
Yes, all our engineers are mandated to be fully register with their regulatory bodies within 4 years of engagement. All engineers are mandated to attend all meetings and trainings scheduled by regulatory bodies. Site meetings and feedback sessions from senior engineers to the younger engineers. In 2009-2011 I was a National Consultant for Department for International Development. We received trainings on all the above points. I am an Annual participant in NSE and COREN AGM's and partake in all their trainings. Site engineers and managers should be trained because they are the ones in charge of the supervision on site and report back to the office in regard to conditions on site. They also have the responsibility to check other contractors.	027

**Table 5.1: Construction Management SC Development Approaches in the NCI**

The views as outlined in Table 5.1 are of the interviewees and clearly stated that training is the main development approach by the NCI. However, it could be noticed from the table that training is widely unstructured and that there is no organised programme for SC development in Nigeria. This supports Detsimas *et al.* (2016) revelation that that there is an absence of a formal and harmonious mechanism for developing SC in the NCI and that the industry generally resorts to informal self-learning and developmental initiatives to acquire the necessary SC. This was also the views of respondents 01, 011, 019. Respondents 07, 015, 016 revealed that they are trained in-house. On the schedule of training, the respondents differ. For instance, respondent 01 stated clearly that training exclusively depends on the budget of his organisation. Respondent 015 was of the view that their training comes quarterly while Respondent 019 said they receive training annually. The respondents have different conditions, schedule and method of training.

Similarly, they also have different ways of selecting who should be trained. When asked, who should be trained in their respective organisations, thirty (30) of them initially said everyone, but with a paucity of training fund, which is usually the case in their respective organisations, twenty-six (26) respondents said the managers and supervisors, while four (4) respondents said both managers and the entire top management. Their reason is that training the construction managers and supervisors who are leaders, will save cost, as the managers and supervisors would in turn train the rest of the staff, as well as share the acquired knowledge within the organisation. But as part of the benefits of being a registered member of Nigerian



Society of Engineer (NSE), which organises constant training, seminars, excursions and symposiums, the respondents opined that that is why their respective organisations naturally mandates them to register with NSE (see Table 6.1 Respondents 027 and 013).

Similarly, respondents differ on means of identifying skills gaps and areas of development. Respondent 02 is of the view that the required skills for the project at hand determines the sets of SC to be developed (see Table 6.1, Respondent 02). Respondent 09 is of the view that the assessment of SC before and after training is the right way to go. Respondent 011 revealed an annual training plan, where the training need of managers are identified and captured in the development plan of the organisation for the year. Respondents 012 and 018 gave what seems like a clearer detail of Respondent 011's comment by stating that every department of the organisation submits the training needs of their staff at the beginning of every year. This implies that there is no established training programme for managers and supervisors. This makes it hard for organisations and HR managers to identify, plan and organise SC training programmes for construction managers. Further study should aim to produce construction management SC training programme which could identify SC gaps and outline training programmes.

### **5.7. Effectiveness and Outcome of the Current Approach to Skills and Competences (SC) Development**

Part of the sixth objective of this study is to examine the effectiveness of the SC development approach currently in practice in the NCI and document lessons and good practice. To achieve this objective, research participants were asked to rate the effectiveness of the current SC development approach, with the use of a likert scale; with 1, as very effective and 4, not effective. The result of the survey is presented in the table 5.2.

Rate the effectiveness of the current SC development approach					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Effective	40	25.8	37.7	37.7
	Effective	53	34.2	50.0	87.7
	Not effective	13	8.4	12.3	100.0
	Total	106	68.4	100.0	
Missing		49	31.6		
Total		155	100.0		

**Table 5.2: The Effectiveness of SC Development Approach in NCI**

In Table 5.2, 37.7% of respondents believes that the current SC development and improvement approach (training) is very effective, while 50% of the respondents believe it is effective. This shows that 87.7% of the validly completed questionnaires views this approach as effective. The approach, which is the formal training and individual internet learning are the most effective approach for the development and improvement of construction management SC in the NCI. The interesting aspect of this result is its inferences for HR managers, organisations and the industry at large, which is that 87.7% of construction professionals that responded to the survey endorsed training and internet learning as effective approaches to construction management SC development in the NCI, hence these approaches can be adopted by all other construction stakeholders for planning of SC development programmes for managers and supervisors. The results in table 5.1 and table 5.2 which presented training and internet learning as the effective formal and informal development approaches implies acceptability and effectiveness of training and internet learning in construction management SC development. What is yet to be determined is why the NCI adopted training and internet learning as the approaches to SC development because Sadler-Smith (2006) listed andragogy, behaviourist and cognitive psychology, education, experimental learning, instructional design, organisational behaviour and science, situated learning and training among learning and development approaches for managers. A glimpse to the answer is the effectiveness of the approaches in the NCI. Further studies could try to understand the factors influencing the preference for training since it was dubbed an expensive approach by majority of the respondents in section 4.1.14. Another important validation of the SC development approach is the question: How satisfactory is the impact of this approach on the project as well as on

the participants. Managers were asked a four likert scale question; how satisfied are you with the quality of training or development programmes you have received within the last five years (satisfaction with project outcomes)? This was to rate the level of their satisfaction with the impact of the training they have received on the project outcomes, the result is presented in Table 5.3.

Rate the level of satisfaction with the impact of the training received on the project outcome.					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Very Satisfied	52	33.5	36.4	36.4
	Satisfied	67	43.2	46.9	83.2
	Fairly Satisfied	19	12.3	13.3	96.5
	Not Satisfied	5	3.2	3.5	100.0
	Total	143	92.3	100.0	
<b>MISSING</b>		12	7.7		
<b>TOTAL</b>		155	100.0		

**Table 5.3: The Satisfaction of SC Development Approach on Projects in NCI**

It will be observed from table 5.3, that 36.4% of respondents were very satisfied with the SC development approach impact on projects, while 43.2% were satisfied, this result indicates that a total of 79.6% respondents believe that the approach has a positive impact and outcome on the project. What this implies for individual managers, HR and project managers, organisations and regulatory agencies in the NCI is that training and internet learning as SC development approaches currently in practice in the NCI has good impact on project outcomes in Nigeria. It will be interesting, to understand how these development approaches directly impact the SC variables that in turn impacts project outcomes. To further understand the impact of these approaches on managers and supervisors, respondents satisfaction was tested against the SC development approaches as it relates to their professional development: How satisfied are you with the quality of training/skills and competences development programmes you have received within the last five years (satisfaction to you)?

Rate the level of personal satisfaction with the quality of training /skills and competence related programs received within the last Five Years.

		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Very Satisfied	22	14.2	14.4	14.4
	Satisfied	65	41.9	42.5	56.9
	Fairly Satisfied	46	29.7	30.1	86.9
	Not Satisfied	20	12.9	13.1	100.0
	Total	153	98.7	100.0	
<b>MISSING</b>		2	1.3		
<b>TOTAL</b>		155	100.0		

**Table 5.4: Training in the last Five year has been Satisfactory**

14.4% and 42.5 % of respondents said they are very satisfied or satisfied with the quality and amount of training received in the last five years. The results, as shown in Table 5.4, stated that over 56.9% of respondents put together are satisfied with the amount and quality of training they received. About 30.1% are fairly satisfied. This is a significant number, more needs to be done to turn this percentage of fairly satisfied to satisfied. But so far, the SC development approach (training) currently practiced in the NCI are satisfactory to both managers' development and impact on project outcomes. Sadler-Smith (2006) revealed that for satisfactory impact, learning and development need should equal desired or required level of performance, minus actual level of performance.

The results from Tables 5.2, 5.3 and 5.4 appear to contradict or deny the existing challenges experienced in both construction management and developing the SC for successful construction management (Section 2.3) in the NCI. Though an analysis of the challenges associated with SC development in the NCI shows that most of the discussed challenges and issues raised were mainly interference and motivational issues like: expensive development with no sponsorship, post-development engagement and reward, corruption and ethical issues, underpriced project budget, political interference and support, lack of knowledge sharing culture, unguaranteed loyalty of trained staff. The only issue of training infrastructure and established standards is linked to the quality of development (section 4.6). Even the issue of standardizing the entire training process has more to do with the leadership of the NCI and

less with the quality content of the training as no respondent had complained about the quality content of training (table 4.1). From the revelation of this study, it can be concluded that the quality content of the SC development in NCI is satisfactory but the enabling circumstances such as lack of sponsorship for the development, is not. This was better demonstrated in Tables 5.5 and 5.6. In Table 5.5, managers were asked if the SC development approach is a global acceptable practice and this study sort to know if this approach is in practice across the world.

Is SC development approach a global acceptable practise?					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	Yes	114	73.5	76.0	76.0
	No	36	23.2	24.0	100.0
	Total	150	96.8	100.0	
<b>MISSING</b>		5	3.2		
<b>TOTAL</b>		155	100.0		

**Table 5.5: SC Development Approach in the NCI is a Global Practice**

Table 5.5 above indicates that 76% of managers perceive the trainings and individual internet learning as global practices while 24% said the practice is a local practice. Going by the percentage of yes, according to majority of constructions professionals in Nigeria, training and individual internet learning are global practices. This is important as it implies that the SC development approach practiced in the NCI is also practiced by other construction industries across the world and not a peculiar practice to Nigeria. This result should encourage individuals, organisations and regulatory authorities to adopt a case study approach in learning and development of managers. The NCI can adopt any advanced construction industry base on similarities of challenges and learn from their approaches to challenges of learning and development of their managers and supervisors. This creates a natural model to emulate and easy tailor to the NCI.

As professionals in the NCI view that training is expensive (section: 4.1.14). Consequently, this study seeks to find out who should be responsible of the bills for SC development in the NCI. Who should pay the cost of this SC Development Approach (training)?

Who should pay the cost of this SC Development Approach (training)?					
		Frequency	Percentage%	Valid Percentage%	Cumulative Percentage %
<b>VALID</b>	Trainee (You)	12	7.7	7.8	7.8
	Company (Employer)	45	29.0	29.2	37.0
	Government Agencies	6	3.9	3.9	40.9
	All	23	14.8	14.9	55.8
	You & Company	10	6.5	6.5	62.3
	You & Govt & Company	19	12.3	12.3	74.7
	Company & Govt	39	25.2	25.3	100.0
	Total	154	99.4	100.0	
<b>MISSING</b>		1	.6		
<b>TOTAL</b>		155	100.0		

**Table 5.6: Responsibility of Training cost.**

From the list in Table 5.6, 29.2% of the respondents believe their employer should be responsible for the cost of training while another 25.3% also mentioned employer and government should foot the bills for training. About eight percent (7.8%) and 6.5% believe the employee (trainee) or they along with their company (employer) respectively should foot the bills for the training. A clear majority of the respondents, 54.5%, clearly favour the employing organisations and government to pay for SC development and improvement of construction managers and supervisors in Nigeria. This result (Table 5.6) signifies lack of motivation and interest of the construction managers and supervisors to bear the cost of their professional development. One participant during the interview, categorically said: “we are worried that we are underpaid for our services, how does anyone expect us to be able to fund any training? we cannot mathematically afford to pay for training, simple.” The implication of this revelation is that for managers and supervisors to acquire the required SC, HR managers and organisations should take up the full responsibility of SC developments. This supports Cascio (2015)’s position, that organisations through their HR should be responsible for the learning, training and development of their managers. According to Brewster (2017), training and development of managers has been a major objective of European organisations for years now and its budget allocation continues to increase significantly. Brewster (2017) concluded

that strategically, training and development of managers will remain a major objective for organisations for at least the next ten years. In the NCI, the Industrial Training Fund Act, 2011 (Appendix J) has mandated organisations to make 1% contributions on project budgets and payrolls for the training and development of their workforce, a contribution that is accessible to them on request. Government intervention through enforcement of this law is needed now more than ever. The industrial training fund (ITF) which is part of every public project should be fully enforced.

### **5.8. Summary**

In the NCI, practitioners use different SC development approaches. There are core and basic skills. The development of these skills today cut across board in the Nigerian tertiary institutions. It is now mandatory for all practitioners in the NCI to identify with a professional body of their academic classification for continuous professional development and improvement of both core and basic SC.

For these professional construction organisations (PCO) to meet their continuous professional development goals, organise trainings, seminars, symposiums, technical visits and excursions, as a way of developing the requisite SC of their members, it was established that communication plays a big role in achieving that. These organisations have resorted to the use of social media platforms like WhatsApp, Facebook, Twitter and others to conduct their formal and informal communication, which has proven very effective in the dissemination of information among their members and employees.

Among construction professionals in Nigeria, civil engineering is rated lowest in the practice and development of construction management SC (Armeh and Odusami, 2014), This is one of the reasons why this study identified civil engineers who are actively managing construction projects for this study. Training is the main and popular development and improvement approach currently practiced in the NCI. Another is sourcing of educative information and knowledge. Training is an effective, satisfactory and global development approach, which is expensive, hence more success will be achieved when employing organisations, perhaps supported by government, are bearing the cost of the training expenses of managers and supervisors. The next chapter looks at the benefits of developing SC to these organisations that has been saddled with the responsibility of bearing the cost.

## **Chapter 6:**

### **The Impact that Effective Skills and Competence (SC) Development on Project Outcomes**

#### **6.0. Introduction**

Training has been identified as the main SC development and improvement approach in the Nigerian construction industry (NCI), this chapter examines the effect this SC development has on construction projects in Nigeria. The previous chapter indicated that training is an effective global practice. This chapter therefore looks at the influence of this effective SC development approach on construction management in Nigeria. This is necessary to justify the increasing investment on the SC development of managers (Phillips and Phillips, 2016).

#### **6.1. Need for Development of Skills and Competences (SC)**

Rwelamila (2007) stated that there are strong indications to suggest that higher learning institutions are terribly unaware of what is required to produce an efficient construction manager for today's construction projects. In terms of improving construction management education, Need (2007), avowed that a review of literature regarding the suitability of construction management education reveals an urgent need for more "soft skills" such as personnel skills, stronger leadership, better communication and greater understanding of main business principles.

Over thirty years ago, Alpander (1986) after studying the responding Fortune 500 companies in the United States, revealed that organisations adopt more of traditional approach when training their supervisors in areas like motivation, communication, evaluating and building supervisors' influence. The other supervisory functions like planning, organising, team building, and production control uses more collaborative/participative philosophy at work. This revelation has been validated by some recent study (Carvalho and Rabechini Junior, 2015; Ebrahimi-Mehrabani, and Azmi-Mohamad, 2015).

Banihashemi *et al.* (2017) and Noe *et al.* (2017) affirmed that managers and supervisors must learn other skills apart from the traditional technical skills relevant to their jobs. The study further emphasized the need for managers and supervisors to also develop skills that are



more conceptual and interactive in nature (Ogbenjuwa *et al.* 2018). Such skills are likely to lead to a more collaborative management philosophy. These skills are likely hard to develop as Carvalho and Rabechini (2015) warned, since they are behaviourally non-specific and are not readily learned through repetition.

When developing SC, the project managers must become that are interactive and see every aspect of the development from social and human perspective (Kerzner and Kerzner, 2017). They must develop techniques and tools which stimulate subordinate assistance and involvement. Conceptual SC on the other hand involve extensive and/or education experience that develop over time.

## **6.2. Managers and Supervisors Effective Skills and Competences (SC)**

As the manager and/or supervisor is the one at the bottom of the project management pyramid, who oversees the materials, labour and processes used to develop a construction project (Hotek, 2000), it is vital to identify the essential SC required for their job. Traditionally, supervisors or managers accomplish work and targets through other people (Almatrooshi *et al.* 2016). They usually practice their managerial and supervisory skills by controlling and directing the way in which other personnel do their work (Hardison *et al.* 2014). Skills required to successfully manage projects are constantly changing (Bumblauskas *et al.* 2018; Martinsuo and Hoverfält, 2018; Goldstein and Noguera 2006; Poglinco and Bach 2004; Egbu 1994). Twenty years ago, project success was about time, budget and quality. But currently, projects are expected to meet its business objectives to be successful (Verzuh, 2015). Managerial and Supervisory SC are used in managing production operations (Heizer, 2016), but the manager and supervisor's SC have changed from that of controlling and directing how, where and when work is accomplished to successfully leading and effectively helping employees control all aspects of their own work (Sallis, 2014; Ika and Hodgson, 2014).

A fundamental skill for a manager or supervisor is to be familiar with the latest developments in his or her field of operation as well as the operating technology, and be prepared to deal with the continual and rapid changes associated with it (Ika and Hodgson, 2014). To achieve this, the supervisor must understand technology as an improving concept. A supervisor or manager must possess SC that will enable him or her to bring out the best from both

technology and employees (Omotayo, 2015). In all, the modern supervisor/manager must be a technically oriented team coach (Wallo *et al.* 2013).

Supervision is in fact formative (Range *et al.* 2011; Zepeda and Kruskamp, 2007) as the goal is to foster both professional development and growth. Certain managerial and supervisory practices required are to encourage worker's self-esteem, effectiveness and efficiency as this constitutes the primary goal of the manager and supervisor's skills (Sullivan and Glanz, 2000; Kalule and Bouchamma, 2013). Effective managerial and supervisory SC are among the most important tools for improving the quality of organisations (De-Grauwe, 2007).

### **6.3. Understanding the Knowledge of Effective Skills and Competences (SC)**

Although what SC means has been discussed in (sections 2.2.1, 2.2.2 and 2.2.3) chapter two of this study, this section will further seek for more further understanding of the entire knowledge of SC. Some researchers have defined competence as having qualification, characteristics to excel and or occupational knowledge and skills (Boyatzis, 1982; Jacobs, 1989; Sandberg 2000). But competence is distinguished from qualification, characteristics and others in that it can only be understood by the field workers in a professional environment (Hersey and Laws, 2009). Competence is a combination and application of skills, knowledge and other qualification and characteristics to satisfactorily perform a given task (MacMillan and Venkataraman 1995; Hersey and Laws, 2009; Pye, Pye and Lagard, 2011; Hwang and Ng 2012). To them, competence goes beyond a qualification instead, it focuses on successful accomplishments. Competence is dynamic (Jarnias, 2003) and socially constructed (Moreau and Mertens, 2013).

Here are a few further definitions of competence: a validated operational knowhow (Pichault and Deprez 2008), which is composed of technical and managerial knowledge in a personal dimension (Cadin *et al.* 2002), the complex capacity to act, which requires support from the mobilisation and the effective combination of various internal and external resources inside categorized situations (Tardif, 2006). Set of behavioural patterns that an incumbent is required to bring to his/her position in order to perform the tasks and functions with competence (Finch-Lees *et al.* 2005). For Hunnius and Schuppan (2013), the concept of competence considers what a person can do in a working environment, regardless of how

this knowledge and capability was acquired. Instead of degrees and formal qualifications, which differ through geographical location, expertise, skills and techniques, know-how is important irrespective of formal degrees acquired. While the qualification concept is input-oriented, the competence concept is output-oriented.

To successfully perform a job, specific skills, knowledge and behaviours are required (Gomez-Mejia *et al.* 2004). Thus, competence, is simply the demonstrable characteristics of an individual, including skills, knowledge and behaviours, that enable successful performance (Dessler, 2005), or as the proper combination of technical know-how, knowledge and behaviour well-structured according to the goal and the objectives in certain working situations (Segrestin, 2004). In fact, these meanings are aligned with European Credit System for Vocational Education and Training ECVET, which states that competence is the proven ability to apply skills, knowledge and personal, social or methodological abilities in work or academic environment and in a personal and professional development (Aribaut, 2009).

All competence-based approaches must have a prerequisite, the location, definition, and organisation (Oiry and Sulzer, 2002), which is allowable within the competence model. A competence model is understood to be a typology of the applicable and important competences in a situation (Segrestin, 2004). The main objective of the competence model is to give an overview of the important and critical competences of a function or task. Furthermore, a competence model is useful for numerous sections of an organisation. It can, for example, help an organisation determine the needed competences and the existing ones (Moreau and Mertens, 2013). A competence model is also considered as an objective and equitable evaluation tool (Oiry and Sulzer, 2002).

From the way Mumford *et al.* (2007) presented the leadership competences, it can apparently be assimilated into managerial competences and knowledge. However, a basic and classic distinction within the different types of competences is made between knowledge, behaviour and know-how. The European Credit system for Vocational Education and Training (ECVET) defines knowledge as an outcome of the assimilation of information acquired through learning. It is the body of principles, theories, facts and practices, which are related to the field of study or work (Aribaut, 2009). In addition, and according to ECVET, skills are the abilities to use know-how and apply knowledge to solve problems or complete tasks.

#### 6.4. Developing Managerial/ Supervisory Competences

The dichotomy Alpander (1986) found in the first line supervisory training programmes of Fortune 500 companies reflects the implications of this study. Any organisation wishing to have collaborative style of management, must first support and incorporate more interactive and conceptual skills in the company's supervisory training programmes for first line management. Already, most of the managers and supervisors interviewed during Alpander (1986) study, need a more participative management philosophy. Over two-thirds of the managers were trained in more technical skills than interactive and managerial skills by their respective construction organisations. This seems to contradict their goal of achieving a more collaborative management style.

Alpander's (1986) study focused on supervisory skills for collaborative management but fails to throw an insight on managerial skills since managers are the actual management of growth in every organisation, even though he acknowledged Steinmetz and Todd (1988) position that managers are crucial to the success of the American corporations, therefore, the role of the first line supervisor within a corporation's managerial level is paramount. Supervisors are assisting the management, therefore, every study on supervisory skills should have managerial applicability. Schermerhorn *et al.* (1985) long figured it out and offered that growth will be initiated and sustained if managers can provide the leadership vital to tap the reservoir of productivity potential within any corporation's workforce. The improvement of construction performance in Nigeria rests on the shoulders of managers and supervisors (Ogbenjuwa *et al.* 2018; Ojeh, 2017). Remember it is the responsibility of first line managers and supervisors to interpret both corporate and project goals and to motivate the workers to achieve them (Sears *et al.* 2015). And of course, this requires strong managerial SC (Alpander, 1984).

Human beings are viewed as beings capable of developing and improving their professional actions (Rahim, 2017; Zarifian, 1999). And it complements the fact that developing managerial and supervisory skills has been known as a fundamental developmental resource in organizational settings (Noe *et al.* 2002). What this means is that there is a need and will. Then, to state the how, Arif *et al.* (2017) suggested that project managers should use their

respectable experiences, knowledge, and status to help develop their subordinates, supervisors and site managers through knowledge sharing.

In developing managerial and supervisory SC, the role a project manager plays have been regarded as an important resource that helps site managers and supervisors learning progression (Bolden, 2016). Recent findings by Sumpter *et al.* (2017), show that project managers need not necessarily engage directly when empowering managers and supervisors. Moderately, by modelling behaviours, project managers can create an environment where managers and supervisors may act with some autonomy and efficiency. According to Bandura (1977), this provides an opportunity for empowerment that is both actionable and cost-effective. Individuals tend to learn vicariously by observing the behaviour of others and the result of the outcomes from this behaviour. And the ability to learn depends on their personal attitude and commitment to learning (Serrat, 2017). Recent studies (North and Kumta, 2018; Serrat, 2017; Arif *et al.* 2017; Tabassi *et al.* 2016) have suggested that for SC to be developed, managers and supervisors' attitudes and personal commitment to learning needs to be ascertained. This was buttressed by Kleinman *et al.* (2001) provided strong support that personal learning mediates the relationship between the managerial and supervisory skills development and outcomes. We infer that personal learning may foster career satisfaction (Wilson *et al.* 2016). Managerial supervisory skills mentoring is an intense interpersonal exchange between the senior experienced colleague like the project manager and a less experienced manager in which the project manager provides direction, support and feedback regarding career plans and personal development (Arif *et al.* 2015; Russell and Adams, 1997). While there are strong arguments to demonstrate the dependence of development of managerial and supervisory SC on personal learning attitudes and commitment, this study has proven that organisation structure and culture influence the development and improvement of SC positively (Section 7:10.1 and 7:11). But supporting all existing theories, the International Project Management Association (IPMA) established an idea which is to develop the competences of people through training, mentoring and coaching and thus enable them to perform better in their projects (Bushuyev and Wagner, 2014).

## 6.5. Importance of Developing Managerial/Supervisory Skills and Competences (SC)

Brotherton and Watson (2001) identified one important function of developing supervisory SC, this is to help site managers and supervisors, in this case, to learn about project management SC which will prepare them for advancement opportunities and career. Elaborating on its importance, Scandura and Ragins (1993) specifically explained that developing supervisory and managerial skills serves three primary functions: a psychosocial function, a career function and role modelling. These functions offer help to subordinates in coaching, sponsorship, exposure and visibility, protection and challenging work assignments.

As stated by Too and Weaver (2014), the primary obligation of construction managers is to achieve the outputs and deliverables as efficiently as possible. This is only achievable through requisite SC. Since managerial and supervisory skills are known to be soft skills, which have more to do with behavioural attitude and personal learning, it requires coaching and mentoring to achieve the best results (North and Kumta, 2018). Booth's (1996) study of the difference between supervisory skills mentoring relationship and a usual manager/employee relationship found that a manager is tighter and task-oriented while a mentor is more committed to the long-term development of the apprentice. A mentor will develop a deeper personal relationship with the apprentice than a manager. This facilitates SC development.

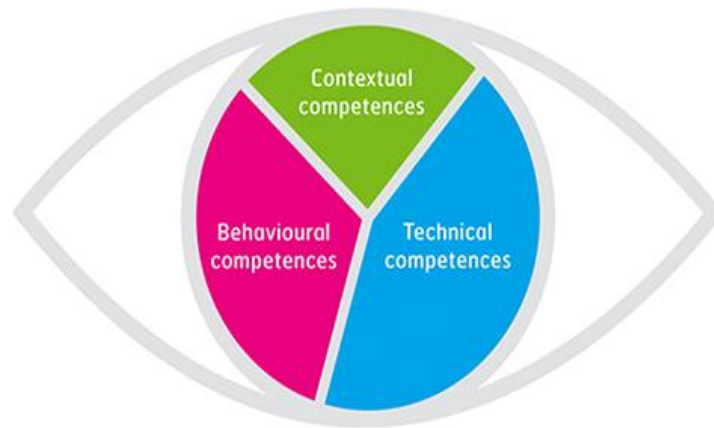
For instance, it is most likely that construction managers possess more job knowledge than their direct reports, in this case, site managers and supervisors. By providing their managers and supervisors with that job knowledge, site managers and supervisors become competent enough to respond to problems that arise on the job (Hunter, 1986; Sumpter, Gibson and Porath, 2017). Secondly, subsequent studies predominately support that supervisory and managerial skills mentoring enhances SCs development for both subjective and objective outcomes (Allen *et al.* 2004; Underhill, 2006).

Furthermore, personal learning promotes competence in approaching work-related problems (Borkovskaya *et al.* 2018; Dave *et al.* 2016; Gouillart and Kelly, 1995). Site managers and supervisors who have developed personal learning habits will possibly do better in their work because they have and continue to develop more SC (Naveed *et al.* 2017). In addition, managers and supervisors who have developed communication and problem-solving skills

feel more confident and competent (Lankau and Scandura, 2002). The SC developed by means of personal learning directly relates to the job performance of the individual and consequently on their business performance (Young and Conboy, 2013; Crawford, 2004; Crawford, 2005). Similarly, Nkado (2000) asserted that management focused skills such as project management, personal and interpersonal skills are increasingly important for all construction professionals.

It is very important to note that personal learning produces a change in attitude and, most importantly, shapes how individuals respond to task, challenges and work environment (Brotherton and Watson, 2001). Brotherton and Watson further concluded that employees, who experience personal learning tend to have more positive reactions to their work because they have developed greater confidence and skills. Personal learning should thus be related to attitudes for developing SC (Azeiteiro *et al.* 2015). And that managers and supervisors who have developed communication and problem-solving skills feel more competent and demand actual feedback for the value of their contributions. Taking into consideration all available literatures (Patterson *et al.* 2017; Wilson *et al.* 2016; Crawford, 2005 Egbu 2004), it is offered that personal learning mediates the relationship between supervisory and managerial skills development and supervisor's work outcomes in terms of job performance and career satisfaction.

International Project Management Association (IPMA) main idea is to develop the competences of managers through training, mentoring and coaching and thus enable them to perform better in their projects. Important side effects of this competence development include but are not limited to an increase in motivation, better self-organisation and less need for a centralized control. Being the newest assessment model, IPMA model has the advantage of integrating a broad spectrum of standards in the field of project management. IPMA model is composed of three core IPMA Standards. Altogether, the three modules of IPMA model – with an intensive triangulation between them – provide a holistic view on project management (Bushuyev and Wagner, 2014) as shown in the diagram below.



**Fig. 6.1: Eye of Competence (Bushuyev and Wagner, 2014)**

“Contextual competence” indicates an understanding of the broad economic, social and cultural setting in which the profession is practiced. It refers to the environment, both social and natural, within which construction management work is embedded (Carmichael, 2004). Any behaviour attribute such as skills and knowledge that contribute to the development of an individual in an organisation and makes him or her competent for bigger responsibilities is located under behavioural competence.

The existing studies (Wilson et al. 2016; Azeiteiro et al. 2015; Bushuyev and Wagner, 2014; Gouillart and Kelly, 1995; Lankau and Scandura, 2002; Crawford, 2004; Crawford, 2005; Young and Conboy, 2013; Brotherton and Watson, 2001) so far indicate that personal learning explains clear processes through which managerial and supervisory SC development influences job performance and career outcomes. This study lends support to these existing previous studies through a revelation of personal learning and SC development approach in a developing economy like Nigeria: sourcing and reading of information and knowledge in construction management online and offline. The recommendations of the studies suggested that construction organisations should design the SC improvement plan for managers and supervisors in such a way that encourages personal learning.

## **6.6. Areas of Development and Development Profile**

In developing or improving SC, an organisation should know what it needs to empower through measurement and evaluation of their SC profile (Phillips and Phillips, 2016). Otherwise employees must know what SC profiles are defined and required for the various tasks within



the firm and must be able to perform analysis that will enable them to choose the right development or improvement plan. The managers or supervisors must know where to go for the development of the identified and required SC (Pyzdek and Keller, 2014). Therefore, generic and flexible profiles should be created, which provide 80 per cent facts. These development profiles provide the organisation with a detailed framework of SC descriptions required to support its core project business and they also provide the employees with a comprehensive overview of the desired competences and the skill-sets to acquire his/her personal career development (Phillips and Phillips, 2016). Of course, SC development profiles are not the only internal tool to support SC empowerment; they are fundamental. Development for instance becomes an ad hoc action if it is not derived from based or focused on SC development profiles (Houtzagers, 1999).

Since the 1990s, project management experts and professional associations have developed assessment methods and competences models based mainly on models and approaches derived from the discipline and targeted at quality management (e.g. Deming's quality maturity grid). Managerial and supervisory SC development play a decisive role in quality management (Trivellas and Reklitis, 2014). Most of these assessment models are strongly process-oriented because processes play a decisive role in quality management. By being strongly process-oriented, this means that the focus is to check whether processes are defined, established, applied, effectively controlled and continuously improved upon (Bushuyev and Wagner 2014). The continuous improvement of managerial and supervisory competences developmental process is the focus of this study.

Focusing on improvement, Bushuyev and Wagner (2014) believe that one of the main drivers of development of construction management performance in the last decade is the continuous and increasing requirement for construction management competence in the current competitive global economy. But their study was limited in clarity of processes of competence improvement. The second reason has to do with the new insights into the success factors for construction management and the increasing research efforts that have tremendously helped to further develop the discipline. New tools, methods and processes were developed. The training, development and improvement of construction managers and

all other construction personnel like site managers and supervisor's competence were identified as vital for success in projects (Bushuyev and Wagner, 2014).

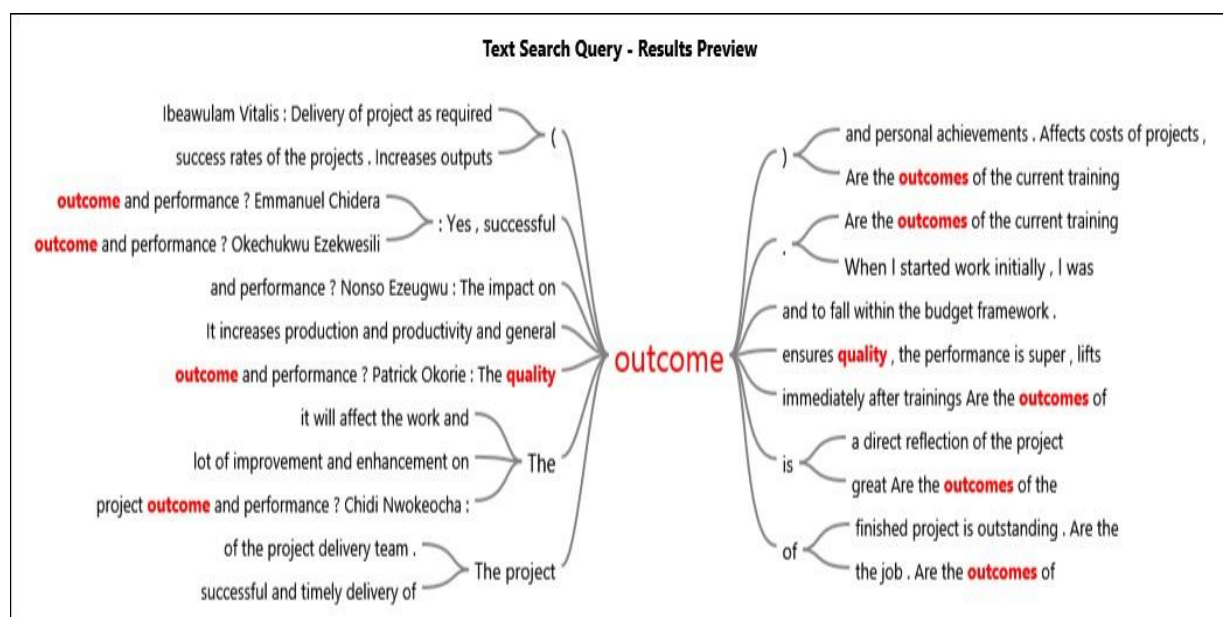
The Bushuyev and Wagner's (2014) work was guided by two concerns: first, that high quality skills are essential for achieving performance improvements, but these are in short supply; and, second, that few firms develop effective human resource strategies to meet skill needs in a changing project environment. Major efforts have been made to create a climate of innovation and performance improvement following a 'technology foresight exercise' and fostered by the UK's Construction Research and Innovation Strategy Panel (CRISP) since 2001.

Development of construction management during the last 20 years has been broadly beneficial in terms of industrial performance, however, there is need for continuous improvements in personal development and learning of managers and supervisors (Wilson et al. 2016). The development of managers may not be sustainable in the long term without substantial changes to training to arrest most of the challenges, which this study suggests are needed to provide for emerging and future skill needs. Available reports confirmed: low levels of training among operatives, and a decline in construction training relative to other European countries (Bushuyev and Wagner, 2014).

### **6.7. The Impact of Skills and Competences (SC) on Project Outcomes in Nigeria Construction Industry (NCI)**

This section addresses one of the objectives of this study, which is to identify the impact SC development have on project outcomes (success). In 2007, Cartwright and Yinger indicated that project success is perceived in different ways, depending on the perspective of several stakeholders, which includes clients, the project sponsor, the project manager, the project team, or performing organisation. Years later, Muller and Jugdev (2012) went on to concluded that there is no clear definition of project success and there is a serious need to develop meaningful and measurable constructs of project success. Several studies (Müller and Turner, 2007; Bryde, 2008; Turner, 2009; Fortune *et al.* 2011; Mir and Pinnington, 2014) investigated the nature of the term 'Project Success' and conceptualised it as a uni-dimensional construct concerned with meeting budget, time and quality.

Davis (2014) reviewed the different areas over time, project has been looked at for the determination of its success. The 1970s examined the technical aspect of a project, the 1980s looked at how project related to client organisation. The 1990s developed CSF and recognition of stakeholders. The 21<sup>st</sup> century is more stakeholders focused, examining the project life cycle goals. In a further study, Davis (2016) outlined three dimensions to determine project success: benefit to stakeholders, client specific issues and the well-known time/cost/quality measurement. Evidence from available literature (Banihashemi *et al.* 2017; Bolden, 2016; Sanghi, 2016; Iyer and Banerjee, 2016), suggested that the collective agreement of stakeholders, which includes project team and environment, and client organisation regarding the degree to which the project meet its agreed objectives and goals, is what truly determines project success. Though Davis (2017) shared a similar view, he went on to warn that to stakeholders, value of these dimensions is not of equal importance; as such, relevant dimension varies according the stakeholder groups.



**Fig 6.2: Impact of SC Development is measured on the Project Outcome**

Figure 6.2 shows the views of the respondents when asked what impact SC have on project outcomes. The analysis of the interviewees responses shows that the thirty of them believe that SC guarantees successful delivery in ‘cost’, ‘quality’ and ‘timely’ outcome of projects. The thirty interviewees were of the view that SC guarantees quality, save time and money during project execution. During the interview, the question was asked; what impact does SC of managers and supervisors have on general project outcomes and performance? Here are

some of the straight responses from the interviewees categorised according to their roles in their respective organisations:

#### **6.7.1. Top Management (Project Executive Directors)**

- ✓ *“The impact is high. The quality of the job, cost implications and timely delivery depends greatly on the skills of supervisors and performance”* [Respondent 03.](#)
- ✓ *“The outcome ensures quality, the performance is super, lifts the name of the company amongst the ranks”* [Respondent 07.](#)
- ✓ *“The secret to construction is using well-trained people (managers and supervisors). That way, even when you are not around, good outcomes are achieved”.* [Respondent 016.](#)
- ✓ *“Delivery of project as required (outcome)”.* [Respondent 011.](#)
- ✓ *“The quality outcome of finished project is outstanding”.* [Respondent 024.](#)

#### **6.7.2. Middle Management (Project Managers)**

- ✓ *“Increases the success rates of the projects. Increases outputs (outcome) and personal achievements. Affects costs of projects, because projects that are managed by properly trained personnel will decrease money spent”.* [Respondent 013.](#)
- ✓ *“Very good output on projects, it will give you the best of the project”.* [Respondent 014.](#)
- ✓ *“Saves time, cut costs, and guarantees better output”.* [Respondent 015.](#)
- ✓ *“Smooth execution and successful of the project”.* [Respondent 017.](#)
- ✓ *“A lot of impact, if a project manager is incompetent, then it will impact the work and the successful outcome of the job (project)”.* [Respondent 022.](#)
- ✓ *“Helps in the successful and timely delivery of the project outcome and to fall within the budget framework”.* [Respondent 023.](#)
- ✓ *“It does have impact, it is very important because if you don’t have knowledge and the required skills, the project will suffer”* [Respondent 025.](#)

#### **6.7.3. Line Management (Site Managers and Supervisors)**

- ✓ *“Yes, successful outcome. When I started work initially, I was closely supervised but now I’m less supervised and trusted as these skills have made me reasonably competent”* [Respondent 02.](#)
- ✓ *“It does have impact except you went there to waste your time”* [Respondent 05.](#)

- ✓ *“The quality and effective project delivery is because of the competence of the project management team. The project outcome is a direct reflection of the project team in time, quality and cost management. A good team delivers a good project” Respondent 06.*
- ✓ *“It increases production and productivity and general project outcome (success)” Respondent 08.*
- ✓ *“Efficient project delivery, new ways of doing things, modernization” Respondent 012.*
- ✓ *“Great impact. Effects of doing the wrong thing can be devastating (building collapses)” Respondent 030.*

The comments above, stratified according to the levels of management of the respondents, give an insight into what the top management, middle management and line management are thinking. Most of the executive directors are owners of their organisations as they indicated in the questionnaires, and are in the top management. They focus on saving time, cost, quality and successful delivery with the aim of protecting and promoting the image of their organisations. They described the impact of SC on project success with words like high, outstanding, super, requirement and achievement. While the middle management are the central project managers, they personalized the project and monitor the success rate of the project. They are of the view that SC increases the success rate of the project and reduces money spent through prudent spending and attention to details. They responded to this question with a more balanced and altruistic view, they used words like best, success, smooth, important, helpful to describe the impact of SC on project performance. The line managers also have similar perspective as the other levels of management. The successful project outcome reflects the project management team. The comment of respondent 02 and 05 literally summed it up. The impact of SC on project guarantees a successful outcome except the SC were not well-developed which respondent 030 said can have a devastating effect. They used words like efficient, great, successful to describe the impact SC have on project outcomes.

The evidence of this study concurred with the old and recent studies that development of SC helps stakeholders ascertain whether the project objectives of time, budget and quality are in line with that of the stakeholders (Bresnen and Marshall, 2000; Bower *et al.* 2002; Chan *et al.* 2008; Tang *et al.* 2008; Yeung *et al.* 2009; Du *et al.* 2016). More researchers agreed that developing SC improves the extent to which critical success factors (CSF) of project management (such as commitment, mutual objectives, attitude, equity, openness, trust,

teambuilding, communication, timely responsiveness and problem resolution) influence project outcomes. Being up to date in all these major SC facilitates understanding and open communication, especially in the sharing of these acquired skills, competences, knowledge, ideas and technologies, which are needed for solving and resolving problems (Du *et al.* 2016; Black *et al.* 2000; Cheng and Li, 2002; Tang *et al.* 2006; Eriksson and Westerberg, 2011).

This was called the “winning philosophy” (Tang *et al.* 2008; Love *et al.* 2011; Du *et al.* 2016). It helps in allocating and optimizing human resources, financing, organisational infrastructure, construction technologies and information management; and thereby increases performance in these areas (Cheng *et al.* 2001; Tatari *et al.* 2008; Skibniewski and Ghosh 2009; Regan *et al.* 2011). Du *et al.* (2016) made an illustration on how developed communication SC assists managers and supervisors in sharing their experiences, ideas, recognition and understanding of project problems. This knowledge sharing presents understanding and innovative decision making. The implication of this revelation for all NCI stakeholders is that SC development is directly proportional to project success. It demonstrated that the success of construction management in Nigeria depends on the successful development of SC. It is important to identify how these SC impact on project outcomes which is outside the scope of this study, but identifying and understanding the SC that are vital to successful construction management is a focus of this study.

### **6.8. Important Skills and Competences (SC) of Construction Management in Nigerian Construction Industry (NCI)**

Table 6.1 shows the list of SC that respondents consider important in construction management in the NCI and the extent to which they were considered. The number of responses any SC attracts makes it either “very important” or just “important”. A total number of 155 respondents attempted these questions with some skipping some SC at intervals. The SC marked “*very important*” are considered important by more than 77 respondents and scores approximately 50% and above in the general percentage, which makes them relevant and important. Those marked “*important*” were responded to by 77 or less respondents and scored less than 50% of the valid percentage, thereby making them just important.

SN	SKILLS & COMPETENCES (SC)	Frequency	General%	Valid %	Remark
1	Decision Making	150	98.1	100	Very Important
2	Team Building	150	96.8	100	Very Important
3	Communication (Oral /Written)	150	96.8	99.3	Very Important
4	Programme design	149	96.1	99.3	Very Important
5	Motivation	148	95.5	100	Very Important
6	Programme maintenances (update)	148	95.5	99.3	Very Important
7	Delegation of Responsibilities	145	93.5	100	Very Important
8	Supervision of others	145	93.5	99.3	Very Important
9	Quality control and assurance	144	92.9	100	Very Important
10	Employee training	144	92.9	100	Very Important
11	Site organisation	142	91.6	100	Very Important
12	Site security	142	91.6	99.3	Very Important
13	Creativity	141	91.0	100	Very Important
14	Leadership	140	90.3	99.3	Very Important
15	Company law	140	90.3	100	Very Important
16	Construction law	139	89.7	99.3	Very Important
17	Recruit/select	138	89.0	100	Very Important
18	Health and Safety	135	87.1	100	Very Important
19	Material planning and control	134	86.5	100	Very Important
20	Manpower planning and control	134	86.5	100	Very Important
21	Budgetary control	133	85.8	98.5	Very Important
22	Sources of finance	132	85.2	100	Very Important
23	Employee welfare/counselling	130	83.9	100	Very Important
24	Managing time	130	83.9	100	Very Important
25	negotiation	129	83.2	98.5	Very Important
26	Managing conflict/crisis	128	82.6	100	Very Important
27	Use of computer technology	128	82.6	100	Very Important
28	Organisation culture	124	80.0	99.2	Very Important
29	Organisation structure	124	80.0	99.2	Very Important
30	Managing Change	123	79.4	100	Very Important
31	Conducting Meetings	123	79.4	98.4	Very Important
32	Company strategic planning	123	79.4	100	Very Important

33	Forecasting and planning	123	79.4	100	Very Important
34	Organisation of communication system	122	78.7	98.4	Very Important
35	Costing and estimating	121	78.1	99.2	Very Important
36	Code of practice/working rule agreement	120	77.4	100	Very Important
37	Job analysis/specification	118	76.1	100	Very Important
38	Managing job stress	117	75.5	98.3	Very Important
39	Public relation	117	75.5	98.3	Very Important
40	Market research	115	74.2	91.3	Very Important
41	Managing local culture/tradition	115	74.2	98.3	Very Important
42	Contract drafting	112	72.3	100	Very Important
43	Company accounting	112	72.3	99.1	Very Important
44	Managing religious sentiment	109	70.3	96.5	Very Important
45	Productivity maintenance and control	107	69.0	99.1	Very Important
46	Advertising and promotion	106	68.4	87.6	Very Important
47	Identifying personal strength and weakness	105	67.7	98.1	Very Important
48	Employment legislation	105	67.7	100	Very Important
49	Career development/appraisal	103	66.5	100	Very Important
50	Planning law	100	64.5	99.0	Very Important
51	Plant planning and control	99	63.9	99.0	Very Important
52	Promotion and transfer	95	61.3	96.9	Very Important
53	Competitive tendering	95	61.3	100	Very Important
54	Competitor awareness	87	56.1	96.7	Very Important
55	Project insurance	78	50.3	98.7	Very Important
56	Client/consumer protection	76	49.0	100	Important
57	Foreign language	49	31.6	65.3	Important

**Table 6.1: Hierarchy of important SC in Construction Management in NCI**

From Table 6.1, the result of the questionnaire survey shows the SC in managing construction projects in Nigeria. All the variables were presented on the table according to the percentage scores from the respondents. The variables were then arranged and grouped in tens for easy classification. Readers can with a glance identify the top ten, top twenty and thirty ranked SC on the table, according to the percentage of respondents that viewed them as very



important. The hierarchical order of importance of the SC would be useful to individual managers, project and HR managers, organisations, authorities, trainers and all stakeholders in the NCI in prioritizing and profiling the SC needs. According to table 3.3 that stratified levels of management, 80.7% of participants in this study and professionals the NCI are line and middle managers. They are very involved in all the SC. For instance, front managers deal with issues like negotiations and conflict management on and offsite on behave of their respective senior managers and organisations in the NCI. This is also one reason, the views of the different levels of management where not presented differently in this study.

### 6.9. Difficult Skills and Competence (SC) in Construction Management in The NCI

Table 6.2 shows the list of SC that respondents consider difficult to deal with in managing construction projects in Nigeria and the extent to which they were considered difficult. The number of responses a SC attracts, makes it either difficult or not difficult. A total number of 155 respondents attempted these questions, with some skipping a few at intervals. Respondents were asked to indicate the extent of difficulty in applying the SC in construction management in Nigeria in likert scale with 1 = very difficult, 2= difficult, 3 = fairly difficult, 4 = not difficult. All the SC marked “not difficult” are rated by the respondents as not difficult to apply. Only source of finance as a SC in construction management was overwhelmingly rated “very difficult” by about 127 respondents.

SN	SKILLS & COMPETENCES (SC)	Frequency	Valid %		Remark
			Difficult	Not difficult	
1	Sources of finance	127	86.6	13.4	Very Difficult
2	Managing time	117	45.3	54.7	Not Difficult
3	Decision Making	127	43.3	56.7	Not Difficult
4	Managing Change	127	38.6	61.4	Not Difficult
5	Managing local culture/tradition	105	37.1	62.9	Not Difficult
6	Managing conflict/crisis	122	36.1	63.9	Not Difficult
7	Foreign language	65	35.4	64.6	Not Difficult
8	Managing religious sentiment	100	35	65	Not Difficult
9	Budgetary control	117	34.2	65.8	Not Difficult
10	Negotiation	120	25.8	74.2	Not Difficult

11	Public relation	101	22.8	77.2	Not Difficult
12	Market research	73	17.8	82.2	Not Difficult
13	Employee training	126	16.7	83.3	Not Difficult
14	Project insurance	72	13.9	86.1	Not Difficult
15	Promotion and transfer	81	13.6	86.4	Not Difficult
16	Employment legislation	82	13.4	86.6	Not Difficult
17	Company accounting	90	12.2	87.8	Not Difficult
18	Advertising and promotion	69	10.1	89.9	Not Difficult
19	Forecasting and planning	91	9.9	90.1	Not Difficult
20	Costing and estimating	94	9.6	90.4	Not Difficult
21	Programme maintenances (update)	118	9.3	90.7	Not Difficult
22	Employee welfare/counselling	93	8.6	91.4	Not Difficult
23	Career development/appraisal	61	8.2	91.8	Not Difficult
24	Material planning and control	111	7.2	92.8	Not Difficult
25	Organisation of communication system	111	7.2	92.8	Not Difficult
26	Communication (Oral /Written)	113	7.1	92.9	Not Difficult
27	Quality control and assurance	112	7.1	92.9	Not Difficult
28	Organisation culture	112	7.1	92.9	Not Difficult
29	Programme design	117	6.8	93.2	Not Difficult
30	Identifying personal strength and weakness	88	6.8	93.2	Not Difficult
31	Planning law	76	6.6	93.4	Not Difficult
32	Organisation structure	112	6.3	93.8	Not Difficult
33	Site Organisation	113	6.2	93.8	Not Difficult
34	Health and Safety	102	5.9	94.1	Not Difficult
35	Job analysis/specification	102	5.9	94.1	Not Difficult
36	Delegation of Responsibilities	104	5.8	94.2	Not Difficult
37	Contract drafting	90	5.6	94.4	Not Difficult
38	Client/consumer promotion	54	5.6	94.4	Not Difficult
39	Use of computer technology	96	5.2	94.8	Not Difficult
40	Manpower planning and control	101	5	95	Not Difficult
41	Recruit/select	119	5	95	Not Difficult
42	Construction law	123	4.9	95.1	Not Difficult

43	Company law	122	4.9	95.1	Not Difficult
44	Plant planning and control	86	4.7	95.3	Not Difficult
45	Site security	113	4.4	95.6	Not Difficult
46	Company strategic planning	114	4.4	95.6	Not Difficult
47	Productivity maintenance and control	94	4.3	95.7	Not Difficult
48	Code of practice/working rule agreement	92	4.3	95.7	Not Difficult
49	Competitive tendering	94	4.3	95.7	Not Difficult
50	Supervision of others	123	4.1	95.9	Not Difficult
51	Team Building	113	3.5	96.5	Not Difficult
52	Competitor awareness	63	3.2	96.8	Not Difficult
53	Creativity	103	2.9	97.1	Not Difficult
54	Motivation	124	2.4	97.6	Not Difficult
55	Managing job stress	95	2.1	97.9	Not Difficult
56	Leadership	102	2	98	Not Difficult
57	Conducting Meetings	101	2	98	Not Difficult

**Table 6.2: Difficult SC in managing construction in the NCI**

Sources of finance was clearly identified by respondents as a very difficult SC in construction management and some of the respondents identified it as being the most challenging skill in managing construction projects in Nigeria. This is understandable as securing funding for construction projects in Nigeria is always an uphill task (Ameyaw *et al.* 2015). Umihanić *et al.* (2016), defined sources of finance as the types of financing sources options available to a company and stated that it is dependent and influenced by the company's life stage and financial market. There are internal and external sources of finances. The SC in Table 6.2 have been sorted and filtered with SPSS to show the extent to which they are considered difficult as rated by the respondents. They were also arranged and grouped in tens, for easy classifications and comparison across table 6.1 and 6.3. Conducting meetings, leadership, managing job stress, motivation and creativity in that order, were rated the bottom of table 6.2 and this implies that they are less difficult SC. While apart from source of finance that is very difficult, managing time, decision making, managing change, managing local culture//tradition, and managing conflicts/crisis were rated just below sources of finance in

the ranking of difficult SC. They are all sitting at the top of the table underneath source of finance.

The implication is that attention needs to be given to the development of sources of finances as a construction management SC in the NCI especially when the Nigerian government is focusing on driving her economy through entrepreneurial developments. Government needs to intervene in entrepreneurial process through supports of grants and providing securities and more accessible to single digit interest loans. It is very interesting that managing time and decision were 45% and 43%, which were close to being rated difficult SC. And attention should be given to them and all top ten SC in table 6.2.

#### 6.10. Skills and Competences (SC) that Need Development in Construction Management in The Nigerian Construction Industry (NCI)

The Table 6.3 shows the list of SC that respondents indicated need development for managing construction projects successfully in Nigeria as well as the relative need for training. The number of responses an SC attracts means it needs development. A total number of 155 respondents attempted these questions with some skipping few at intervals. All the SC marked “need” are considered in need of development by the respondents.

SN	SKILLS & COMPETENCES (SC)	Frequency	General %	Valid %	Remark
1	Employee training	135	86.5	99.3	Need
2	Team Building	126	81.3	100	Need
3	Health and Safety	122	78.7	100	Need
4	Programme maintenances (update)	124	78.1	97.6	Need
5	Communication (Oral /Written)	120	77.4	97.6	Need
6	Programme design	120	76.8	99.2	Need
7	Quality control and assurance	119	75.5	98.3	Need
8	Employee welfare/counselling	115	74.2	100	Need
9	Recruit/select	102	67.1	98.1	Need
10	Use of computer technology	105	67.1	99	Need
11	Sources of finance	103	65.8	99	Need
12	Material planning and control	101	64.5	99	Need

13	Motivation	99	63.9	100	Need
14	Creativity	98	62.6	99	Need
15	Manpower planning and control	96	61.3	99	Need
16	Managing local culture/tradition	97	60.6	96.9	Need
17	Supervision of others	92	58.7	98.9	Need
18	Leadership	89	57.4	100	Need
19	Construction law	92	57.4	96.7	Need
20	Company law	91	57.4	97.8	Need
21	Managing religious sentiment	92	57.4	96.7	Need
22	Forecasting and planning	87	56.1	100	Need
23	Delegation of Responsibilities	88	55.5	97.7	Need
24	Public relation	89	54.8	95.5	Need
25	Job analysis/specification	79	50.3	98.7	Need
26	Conducting Meetings	77	49.7	100	Need
27	Budgetary control	78	49.7	98.7	Need
28	Project insurance	76	48.4	98.7	Need
29	Code of practice/working rule agreement	73	46.5	98.6	Need
30	Identifying personal strength and weakness	71	45.2	98.6	Need
31	Costing and estimating	70	45.2	100	Need
32	Managing conflict/crisis	72	44.5	95.8	Need
33	Employment legislation	71	44.5	97.2	Need
34	Managing time	70	43.2	95.7	Need
35	Site Organisation	69	43.2	97.1	Need
36	Managing job stress	70	43.2	95.7	Need
37	Managing Change	66	42.6	100	Need
38	Decision Making	67	41.9	97	Need
39	Organisation of communication system	66	41.9	98.5	Need
40	Company strategic planning	64	41.3	100	Need
41	Site security	66	40.6	95.5	Need
42	Contract drafting	61	39.4	100	Need
43	Productivity maintenance and control	62	38.7	96.8	Need
44	Organisation structure	60	38.1	98.3	Need

45	Career development/appraisal	59	38.1	100	Need
46	Organisation culture	59	37.4	98.3	Need
47	Promotion and transfer	58	36.8	98.3	Need
48	negotiation	59	35.5	93.2	Need
49	Company accounting	54	34.2	98.1	Need
50	Planning law	52	32.9	98.1	Need
51	Plant planning and control	53	32.3	94.3	Need
52	Market research	99	31.6	87.5	Need
53	Competitive tendering	45	29	100	Need
54	Advertising and promotion	49	26.5	83.7	Need
55	Competitor awareness	39	23.2	92.3	Need
56	Client/consumer promotion	35	22.6	100	Need
57	Foreign language	41	22.6	85.4	Need

**Table 6.3: SC that need Development in construction management in the NCI.**

All the fifty-seven SC were ranked on table 6.3 according the rating from the respondents listed in the general percent column of the table. Employee training, team building, health and safety, programme maintenance, communication, programme design, quality control and assurance, employee welfare/counselling, recruit/select, use of computer technology, sources of finance, material planning and control, motivation, creativity, manpower planning and control, managing culture/tradition, supervision of others, leadership, construction law and company law are the SC within the top ten and twenty SC that need development in construction management in the NCI. It is interesting to note that sources of finances that was rated as the highly difficult SC in construction management (see table 6.2), was rated the eleventh SC that needs to be developed, it was expected to make the top ten, but at least it made the top twenty. This can be deduced by the fact that according to Table 3.3 in section 3.4.2, 48.4% and 32.3% of the respondents are line and middle managers, they do not bear direct responsibilities of sourcing finances in their respective organisations. A pool for 19.3% of the senior managers, whose direct responsibility it is in their respective organisations to source finances will place sources of finance as an SC perhaps on the top of the variables. Individual managers, project and HR managers, trainers, organisations and authorities now have access to identified list of top SC that need development to select and profile from in other to identify individual areas of development.

## 6.11. Summary

It is important to understand that the measurement and evaluation of managers' SC profile plays an important role in understanding what needs to be developed and how it can be developed. Personal learning, attitude, commitment, mentorship was listed as being important towards a productive development of SC. Project success should be defined by all project stakeholders, objectives and goals clearly marked, for a clear understanding of how and when it will be met. This study identified project success in three main categories of time, cost and quality. A project must satisfy its objectives and goals in these three areas to be successful. The influence of SC improves the chances of the project outcomes to meet these three important success criteria.

This study corroborates with existing literature that SC development improves the extent to which critical success factors of construction management influence project outcomes. This study confirmed that SC increase the success rate of the project and reduces money spent through prudent spending and attention to details. The impact of SC on project assures of a successful outcome whereas SC not well-developed will have an opposite effect. SC development helps save time, cost, as well as assures of quality and successful delivery with the aim of protecting and promoting the image of their organisations.

All the 57 SC identified in the literature are important in managing construction projects and need development. SC that were rated in both the top twenty important SC and the top twenty SC that need development in no order preference are team building, communication, programme design, motivation, programme maintenance, supervision of others, quality control/assurance, employee training, creativity, leadership, company law, construction law, recruit/select, health and safety, material planning and control, manpower planning and control. It is very important to note that only employee training was rated in all the top twenty of the Tables 6.1, 6.2 and 6.3. This shows how imperative and challenging respondents rated the training of managers in NCI for it to be in the top twenty important SC, difficult SC and SC that need development. Organisations are responsible for SC development and can now use the identified SC to prioritise and profile their managers and supervisors before investing in development. The next chapter evaluates the success factors that are required to make a successful SC development.

## **Chapter 7:**

### **Critical Success Factors (CSF) to Skills and Competences (SC) Development in the Nigerian Construction Industry (NCI)**

#### **7.0. Introduction**

This chapter sets out to evaluate those factors that critically influence and make SC development successful. Saraph *et al.* (1989) viewed critical success factors as those important areas of managerial planning and actions that must be applied to achieve efficiency. In terms of SC development and knowledge management, they can be viewed as those practices and activities that, if well implemented, ensure the successful development of SC. Zwikael and Globerson (2006), in support of these explanations, stated that most project managers are aware of the list of main factors that influence and distinguish between project failure and project success; these influencing factors are usually called Critical Success Factors (CSFs). These activities and practices would need to be either nurtured, if they are already in existence or be developed, if they are yet not in place (Wong, 2005).

These factors influence every human activity (Neff, 2017). From the literature, the following were identified as CSF that influence the development of knowledge, SC in construction management.

#### **7.1. Leadership Management and Support**

Leadership plays an important role in influencing the success of SC development and improvement as well as knowledge management (Egbu, 1999; Pan and Scarbrough, 1998; Holsapple and Joshi, 2000; Horak, 2001; Ribiere and Sitar, 2003). As pointed out by Wong (2005), the role of leaders as role models to demonstrate the desired behaviour for knowledge management and SC development is very important. Arif *et al.* (2017) elaborated that leaders, managers and supervisors should, for instance, demonstrate a strong willingness to offer and share their knowledge freely with others, to continuously search and learn new knowledge, skills and ideas which would improve their overall competences.



Leaders and managers are admonished by Anumba *et al.* (2005) to model their actions and behaviours to encourage and support SC development, not just words. Through this, according to Bolden (2016), they deepen their influence on others to imitate them and increase the inclination of employees' participation. Other leadership competences that would be important include steering the change effort, conveying the importance of SC development and improvement to managers (Mittal and Dhar, 2015). In so doing, they maintain the managers' morale and create a culture that promotes skills development and knowledge sharing (Egbu, 2004). Basically, leaders create the necessary atmosphere, culture and conditions for effective SC development and improvement as well as knowledge management (Holsapple and Joshi, 2000).

As is the case with all changes, development programmes, the support and commitment of top management is critical to the success of every initiative (Banihashemi *et al.* 2016; Martensson, 2000; Truch, 2001; Jarrar, 2002; Sharp, 2003). In addition, Storey and Barnett (2000) were of the view that this support from senior management should be delivered in a practical and sustainable manner. Such support and commitment should then be transformed into efforts that would contribute to the success of SC development.

## **7.2. Information and Communication Technology (ICT)**

Few would argue that one of the main enablers for skills, knowledge and competences development is ICT. Its capability has over time evolved from being purely a static archive of information to being an enormous connector of humans to information and of human to human (Kuo *et al.* 2013). It has enabled rapid search, access, discovery and retrieval of information, it also supports internal and external communication and collaboration between organisations. ICT certainly plays a major role in supporting SC development procedures (Cohen, 2017; Kuo *et al.* 2013; Alavi and Leidner, 2001; Lee and Hong, 2002). Nevertheless, it is important to note that ICT is only a tool not an ultimate framework or strategy (Wong and Aspinwall, 2003).

There is an extensive collection of ICTs that support SC development, which an organisation can apply and integrate into their technological platform. Luan and Serban (2002) suggested that ICTs can be grouped into any of the following categories: skills and knowledge base,

business intelligence, content and document management, collaboration, portals, customer relationship management, data mining, workflow, search and e-learning.

Skills and knowledge base role of ICT as categorised by Luan and Serban (2002) is the interest of this study. Important factors that need to be considered in the development of a skills and knowledge system comprises ease of use, simplicity of technology, suitability to the needs of users, relevancy of skills and knowledge content, as well as the standardisation of a skills development structure (Wong, 2005).

### **7.3. Strategy and Purpose**

Another means of guaranteeing a successful management SC development is through having a clear and well thought out strategy (Kane *et al.* 2015). This provides the platform for how project organisations can deploy their capabilities and resources to achieve their skills and knowledge goals. Whereas several strategies for developing skills, knowledge and competences have been suggested in the literature (Kane *et al.* 2015; Egbu, 2004; Soliman and Spooner, 2000; Liebowitz, 1999), an applicable one should be fine-tuned to focus on the unique situation and context of different industries.

To attach more significance to skills, knowledge and competences development strategy, the approach should be able to support a vital business issue of project organisation and the industry at large. The literature (Kane *et al.* 2015; Ebrahimi-Mehrabani and Azmi-Mohamad, 2015; Maier and Remus, 2002) seems to have common agreement in that the strategy should be linked or integrated with the strategy of the business enterprise as there is always a vision behind the development of every project and organisation.

In support of the notion of strategy, the development of a vision for pursuing SC development should be compelling and shared. It is essential that this vision is understood and supported by all involved for it to work successfully. Hence clear purposes, objectives and goals should be set. To drive home, the importance and value of skills, knowledge and competences development should be clearly spelled out to generate the required passion in everyone needed to attain the goal.

In all, the above elements need to be fully developed before a substantial investment is initiated to trigger the SC development programme.

#### **7.4. Review and Measurement**

A data collection system that gives valuable information about an actual situation or activity is achievable through review and measurement of SC (Phillips and Phillips, 2016). Initiatives like skills, knowledge and competences development will suffer the risk of becoming just another management hype, if left unmeasured. General phrases like “what is measured is what gets done” and “you cannot manage what you cannot measure” certainly hold true in skills, knowledge and competence development (Phillips and Phillips, 2016). According to Ahmed *et al.* (1999) and Arora (2002), measuring is necessary to ensure that the envisioned objectives are outlined and attained. Measurement enables tracking of progress made, and helps to determine its advantages and effectiveness (Alizadehsalehi and Yitmen, 2016). Basically, measurement and review provide the basis for evaluation, comparison, control and improvement on the performance of skills, knowledge and competences development (Wong, 2005).

Furthermore, review and measurement are also needed to demonstrate the worthiness and value of skills, knowledge and competences development initiative to top management and stakeholders (Cohen, 2017). Without such justification, confidence and support of top management to sustain the development will diminish (Azeiteiro *et al.* 2015). As it is difficult, and almost impossible to quantify the benefits of skills, knowledge and competences development, especially in a short term, providing descriptive indicators that will reflect success made at an early stage is very important (Mittal and Dhar, 2015). Another key aspect of review and measurement is to appraise the impact that SC development has on financial results. Though linking SC development directly to financial results can be difficult as several intertwining variables can influence financial performance of a project organisation at the same time. Whereas it is important to correlate SC development with financial performance, care should be taken not to claim a causal relationship (Hasanali, 2002).

Over two decades ago, Ahmed *et al.* (1999) warned that it is vital for traditional hard measures and reviews are supplemented by soft, nonfinancial measures and reviews to provide an all-

inclusive approach to reviewing and measuring. Some of the methods from the literature, which are being used, consist of intellectual capital metrics (Sveiby, 1997; Liebowitz and Suen, 2000; Bontis, 2001) and the balanced scorecard (Kaplan and Norton, 1992; Arora, 2002). However, there was no absolute approach to reviewing and measuring skills, knowledge and competences in construction project organisations (Gupta *et al.* 2000), until the recent Philips and Philips (2016) six sigma study, which provided training needs analysis through process audit; assessment of knowledge, skills and competence; and assessment of employee attitudes.

## **7.5. Resources**

To successfully implement skills, knowledge and competences development is dependent upon resources. Finance is inevitable for an investment in a technological and any other developmental programme to be made. To train any workforce, there is need to coordinate and manage human resources in the implementation of the skills, knowledge and competences development related programme. Time as a resource is also very important and should receive serious consideration. Organisations should plan to free up time for their workers who are identified to participate in any SC development activities like training sessions, study leave and knowledge sharing. Also, creating opportunities and time for people to improve on their skills, knowledge and competences is very important (Martensson, 2000) to guarantee good performance. Apart from this, according to Davenport and Volpel (2001), attention is one of the scarcest identified resources in many organisations. They raised the need for these organisations to focus on attention management as a key to successful skills, knowledge and competences development.

About 66% of the survey respondents identified SC development as expensive and complained of availability of resources – finance as a primary concern in SC development and improvement in NCI (section 5.12.1). This must be appropriately considered when planning and implementing skills, knowledge and competences development initiative. For instance, the programme scope should not be bigger than the available resources. Resources should be budgeted and invested to organise the programme. Proper budgeting of resources is crucial (Kerzner and Kerzner, 2017). Arguably, one of the key challenges of the industry in achieving effective skills, knowledge and competences development is to deal with the

situation, with their resources. This implies understanding how these resources can better be acquired, allocated and managed for the success of the programme (Noe *et al.* 2017).

This study has established that SC approach in practice in Nigeria is expensive (Section 5.12.1). Therefore, any investment decisions in skills, knowledge and competences development programme must be based on a comprehensive consideration of available resources, and not on just the belief that it is “a nice programme to have”.

### **7.6. Elementary Orientation and Education**

Orientation and education are another CSF for successful skills, knowledge and competences development. In a common-sense approach, employees in any organisation need to be taught to be conscious of the need for SC development and to recognise and understand it as the main resource for the viability of the organisation. The provision of proper orientation of employees can address this issue. With the knowledge provided by such education, employees will develop a better understanding of the concept of skills, knowledge and competences. This orientation and education also help to frame a common ideology and perception of how they think, understand and define skills, knowledge and competences (Section 4.10 and 8.3).

Furthermore, employees could be educated by using technological tools for developing SC. This also helps to ensure that employees can utilise the full capabilities and potentials offered by these tools. It is very important to equip them with the skills to foster innovation, creativity, and knowledge sharing (Wang,2005). To buttress this point, Horak (2001) suggested that, for effective construction management, skills development should happen in the following core areas: communication, peer learning, soft networking, collaboration, team building and creative thinking. Similarly, Yahya and Goh (2002) asserted that orienting and educating individuals in areas like creativity, documentation skills, team building and problem solving have a general positive impact on skills, knowledge and competences development.

### **7.7. Human Resource Management**

Surely, SC development stakeholders cannot afford to ignore the valuable contribution that a good human resource management can bring along as human beings are the only

originators of skills, knowledge and competences. This was confirmed by the statement credited to Davenport and Volpel (2001), “managing knowledge is managing people; managing people is managing knowledge.” The role and significance of HRM in skills, knowledge and competences development and management have been discussed in several literatures (Brelade and Harman, 2000; Garavan et al., 2000; Soliman and Spooner, 2000; Robertson and Hammersley, 2000, Philips and Philips, 2016). While HRM is vital to the organisation in many ways, the main emphasis here is on skills, knowledge and competences recruitment, development and retention.

It is crucial to carry out an effective recruitment of employees because it is one of the major processes through which knowledge, SC are brought into the organisation (Tang, 2017; Tang, 2017). Employees with the required knowledge and desired skills to fill gaps should be recruited. Moreover, it is essential that the organisation solicit and recruit those who have the inclination and tendency for developing and sharing skills and knowledge (Arif et al. 2017). In addition, Robertson and Hammersley (2000) emphasized the significance of recruiting candidates with the ability to fit into the organisation's culture or distinguished way of working instead of just matching them to any job specification available.

Secondly, employee development is another major way to improve and enhance the skills, knowledge and competences of individuals in the organisation (North and Kumta, 2018). The skills, knowledge and competences required by managers and supervisors to be efficient, needs to be continuously developed and improved upon to produce valuable contributions to the organisation through the effective management of their projects (Bolden, 2016). Where this is not the case; as with any other tangible asset, the value and efficiency of such an asset will depreciate. Hence, organisations must provide appropriate continuous professional development programmes to their employees (Wang, 2005).

The third central issue in skills, knowledge and competences development is how to retain skills, knowledge and competences from being depleted. This is where the roles of employee retention gain its significance in skills, knowledge and competences management (Rothwell et al. 2018), especially, for the construction sector. To retain managers and supervisors working for an organisation, it is very important to create opportunities for them to develop and improve their skills, knowledge and competences thereby growing and advancing their

career. All HR policies and general practices need to be designed and redesigned to enable them to meet their career and personal aspirations (Rothwell *et al.* 2018; Brelade and Harman, 2000). Similarly, it is important to provide a conducive environment in which managers and supervisors are comfortable to foster innovation and creativity, and meet job satisfaction among them.

### **7.8. Enterprise and Entrepreneurial Skills and Competences (SC)**

Evidences gathered from this research as discussed in (section 4.9) indicated that job opportunity is a big factor that discourages managers and supervisors from participating in SC development and improvement in Nigeria. During the interviews, the participants complained that the lack of jobs discourages them from engaging in training as there are no opportunity as for professional engagement and practice. SC can be underused and perhaps lost, the motivation for skills development can also be lost with dearth of jobs (Trevithick, 2011). According to Garbharran *et al.* (2012) and Wang (2016), the construction industry is one of the largest creators of jobs in developing countries, but this is not the case with Nigeria. That is a clear indication that something is not right with the NCI. Dimuna (2017) attributed to lack of competent professionals.

One of the solutions suggested by this study is an enterprising and entrepreneurial approach to the lack of jobs in Nigeria. Construction managers and supervisors are encouraged to acquire enterprising and entrepreneurial SC as part of their development and improvement strategies and to seek understanding of what enterprising and entrepreneurial skills are and how they can be developed. Many Universities in Nigeria have added entrepreneurial related courses to their programme. For instance, Enugu State University of Technology now has entrepreneurial engineering as part of their engineering management programme. Anyaeji (2016) in his inaugural speech as the 30<sup>th</sup> President of Nigeria Society of Engineers (NSE) highlighted that COREN is licensing firms in so many areas of engineering practice that are enterprising. He enjoined engineers and their partners to establish enterprises that are focused on their practice areas to reduce unemployment in the sector. Construction professionals must be continuously creative and innovative. Townsend *et al.* (2010) insists that for entrepreneurial minded managers, it is not just a matter of doing things well: it is essential to add something new every now and then. This ensures that they stay in business and

continue to independently solve problems and create more jobs in the sector (Kane *et al.* 2017).

### **7.8.1. Nature of Enterprising and Entrepreneurial Development**

Some researchers have established that enterprising skills can be learned (Neck and Greene, 2011; Pittaway and Cope, 2007). However, others are of the view that the capability or competence to be enterprising can be acquired by training (Schelfhout *et al.* 2016; García-Palma and Molina, 2016; Pilch and Shimshon, 2007). Enterprising education develops enterprising skills, competences, behaviours, attributes and knowledge (Daniel *et al.* 2017; Raposo and Paco, 2011; Gibb, 1993), and develops trainees to use these SC (Rae *et al.* 2012) unlike the traditional entrepreneurship education which was aimed at encouraging people to just start a business (Jones and Iredale, 2010).

This study also found that lack of job opportunities blocked the needed continuous practical and experimental application of the knowledge, SC that were developed during training. Jones and Iredale (2010) proffered that enterprising and entrepreneurial training encourages learning through creative problem-solving, experimentation, independent thought and interaction with others. Enterprising is not just a bundle of skills, competences and attributes but also a learning and development process. While the concentration is being shifted to experiential approaches from transmission models (NESTA, 2008), Pilch and Shimshon (2007) observed that enterprise education develops “pragmatism, adaptability, determination, qualities and attitudes of self-reliance”. Hence, naturally, enterprising emphasises greatly on personal development (Sugarman, 2015; Gibb, 2002). Suggestive of workplace-based “self-managed learning” (Cunningham *et al.* 2000), these characteristics are known to be consistent with the “emerging” approach of heutagogical learning in education (Bhoyrub *et al.* 2010). Blaschke (2012) defines heutagogy as facilitating the development of trainees’ SC as well as their capability and capacity to learn. According to Tiwari (2015), like heutagogy education, enterprising redefines the developmental mechanism of connecting teachers and learners, allowing trainees to be in control of their learning thereby developing personalised learning experiences (Rae, 2010).



In this processing of renegotiating and reshaping the entire teaching and learning concept, Jones and Iredale (2010) discovered that instructors are converted facilitators whose sole responsibility is guiding the trainees through the process of learning and development (Draycott *et al.* 2011; Jones and Iredale, 2010). The construal of teachers or trainers as facilitators or guides is also seen in other constructivist teaching and learning approaches (Murphy, 1997; Stack and Bound, 2012), such as online training or learning (Haythornthwaite, 2009) and problem or project-based training or learning (Savery, 2015).

Almost two decades since Gibb (2002) and Rae (2007) reported that there is increased consideration on delivering enterprising education outside business schools. Other researchers (Vaicekauskaite and Valackiene, 2018; Wilson, 2012; Rae, 2010) have found the importance and promotion of enterprising education across science and technology as well as creative and humanities programmes. The development of enterprising and/or entrepreneurial SC are also being adopted in schools (Boore and Porter, 2010). In the context of these increasing demands from other subject areas (Rae, 2010), the construction industry, just as indicated by the finding of this research, should adopt enterprising and entrepreneurial education as a form of both SC development and improvement, as well as job creation because, according to Daniel *et al.* (2017), entrepreneurs and academics are important players who introduce innovative planning and managerial approaches that will provide the industry with intelligence, knowledge, tools, skills and competences that are of competitive advantages. Carey and Matlay (2010) had advocated for similar approach and advised that business trainers should learn from those training creative disciplines.

### **7.8.2. Enterprising and Entrepreneurial programmes**

To Gibb (2002), enterprising courses cover an extensive spectrum of issues and topics, from business subjects to transferable skills, competences and work experience. Faherty (2015) was of the view that enterprising and entrepreneurial programme develops ideas, highlights creativity and problem-solving skills. It also develops and enhances communication including persuasion and practical action. Wilson *et al.* (2009), also concluded that enterprising and entrepreneurial education programmes build self-efficacy and self-confidence, developing practical SC required to initiate and track ideas, providing experience in building teams. While some programmes use active learning (Jones and Iredale, 2010), integrating real live

situations, role plays, projects and business plan development and presentations (Levie, 1999), suggestions from Neck and Greene (2011) indicate that effective enterprising and entrepreneurial education requires innovative forms of training.

Rae (2010) insisted that conventional forms of assessment, exams and essay writings, are not the most favourable for assessing enterprising SC as they are not sufficiently practice based. Although there exist many traditional approaches of enterprising and entrepreneurial assessment, which exclude the assessment of desired enterprising learning outcomes (Botham and Mason, 2007), the QAA (2012) recommended using a range of enterprising and entrepreneurial assessment tools. The challenge according to Carey and Matlay (2010), is that even when enterprising SC such as idea generation are being assessed, it in most cases could cause anxiety among trainers; perhaps, because according to Dimuna (2017), there are few or no well-developed and approved framework for assessing skills, competences and behaviours in NCI until now that this study was conducted.

### **7.9. Organisational Culture**

Another critical factor for the successful SC development as well as knowledge management is organisational culture (Yann *et al.* 2017; Omerzel *et al.* 2011; Egbu, 2004). With organisational culture, according to Fellows and Liu (2015), the core social customs, beliefs, values, and norms that govern the way individuals act and behave in an organisation are defined. Generally, a culture supportive of competence is one that highly values and encourages skills and knowledge development, transfer and application (Yann *et al.* 2017). The main challenge for most skills and knowledge management strategies essentially lies in developing and imbibing in such a culture (Wong, 2005). A survey conducted by Chase (1997) reported that culture was a major problem faced by organisations while developing a successful knowledge-based programme.

As culture is a wide concept, which means it comprises many facets, collaboration is one cultural aspect that is crucial for SC development. According to Goh (2002), a collaborative culture is a vital condition for knowledge or skills transfer to happen between different individuals and groups. This is because knowledge and skills transfer require different individuals to come together, interact, exchange ideas and share knowledge and skills with

each another (Cincera *et al.* 2018). Not just that, collaboration has empirically been proven to be the main contributor to knowledge and skills development (Arif *et al.* 2015; Lee and Choi, 2003).

Another fundamental aspect of a skills development friendly culture is trust (Lleó, *et al.* 2018; Lee and Choi, 2003; DeTienne and Jackson, 2001). Lack of well-developed mutual trust will make people skeptical of the behaviours and intentions of others, thus, causing them to most likely withhold their knowledge. Improving relationship of trust between different individuals and groups will help facilitate more proactive knowledge sharing and skills development process (Lleó, *et al.* 2018). Secondly, there is a need to build innovative culture in which individuals are often encouraged to generate new ideas, knowledge, skills and solutions. Similarly, Goh (2002) suggested a culture that emphasizes problem seeking and solving. Individuals involved in the project should also be allowed to query current practice and to take change actions through empowerment (Lleó, *et al.* 2018). By empowering these individuals, they will have the opportunities and liberty to explore new challenges, possibilities and approaches. This breeds innovation.

Also, important is the component of openness where mistakes are identified, openly shared and discussed without the fear of discrimination and punishment (Fellows and Liu, 2015). On this approach, rational mistakes and shortcomings are not only tolerated but allowed and pardoned. Mistakes in any developing system should be part of an investment process in humans because it can be the main source of their learning (Wong, 2005). Because of how influential culture as a success factor is to skills and knowledge development, several studies (Lleó, *et al.* 2018; Ebrahimi-Mehrabani and Azmi-Mohamad, 2015; Egbu, 2004; Egbu *et al.* 2002), have insisted that organisations should ensure that their skills and knowledge development approaches fit and is embedded into their organisational culture. To this end, McDermott and O'Dell (2001) also highlighted the importance of matching skills and knowledge development approaches with the culture, strategy and core value of an organisation. This seems evidenced by this study's finding as presented in Table 7.1.

### **7.9.1. Culture as a Critical Success Factor in SC Development**

As disclosed by Fellows and Liu (2015), people construct meaning from a process that enables them understand their situation, this is achieved by understanding the signals they receive. They further explained that this is about connecting signals of their work environment. These signals constitute the values and norms in the organisation known as culture. This research regards culture as the tradition, values and norms of a group of people (Fellows and Liu, 2015). It is one of the main objectives of this study to analyse if development of SC is a cultural issue as stated in some of the literature (Yann *et al.* 2017; Fellows and Liu, 2015; Omerzel *et al.* 2011; Long and Mills, 2010; Hofstede 1984). The findings in the tables below reveal that many practitioners have different views on culture as an influencing factor in the development and application of SC in Nigeria.

Culture has received tremendous attention in the industry for the last decade. This affects organisational behaviours (Mao *et al.* 2017). Mao *et al.* (2017) went on to explain that organisational members bring their individual behaviours; these behaviours tend to gradually align and be homogeneous when exposed to the vision and objectives of the organisation to form a culture with the aim of accelerating organisational goals. It is this culture that Hofstede (1981; 1984) defined as “a collective programming of the mind which distinguishes the members of one organisation from another” which in other words means, a system of collectively held values and norms that forms a tradition. Rameezdeen and Gunarathna (2003) as well as Schein (2009), argued that there is no doubt every organisation develops their own unique cultures. Hibbert and Huxham (2010) stated that tradition is the preservation or the process of preservation of any symbolic content and practice within an organisation, which involves the development and application of a guiding and constraining authority against possible change of this process of preservation.

These studies referenced above support the context under which this survey was designed to understand the influence culture and tradition have on the development and improvement of SC.

Rate culture as a factor that encourage or discourage development of SC of managers and supervisors.					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	strongly encourage	76	49.0	60.3	60.3
	encourage	22	14.2	17.5	77.8
	discourage	17	11.0	13.5	91.3
	strongly discourage	11	7.1	8.7	100.0
	Total	126	81.3	100.0	
<b>MISSING</b>		29	18.7		
<b>TOTAL</b>		155	100.0		

**Table 7.1 Culture as a factor Influencing in SC development in the NCI**

From the result of the survey conducted (see table 7.1), respondents were asked to rate culture as a factor that encourage or discourage development of SC of managers and supervisors in the NCI, from (1) being strongly encourages to (4) strongly discourages (see Appendix F: main study questionnaire). 60.3% of respondents said culture strongly encourages development of SC, 17.5% noted that it encourages which brings the total to 77.8%. On the other hand, 13.5% opined that culture discourages, while 8.7% said it strongly discourages SC development, bringing the total to 22.2%. This shows that 77.8% majority of the Nigerian construction professionals see culture as an influencing factor, supporting the development and improvement of SC of construction managers and supervisors.

Rate Tradition as a factor that encourage or discourage development of SC of managers and supervisors.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly encourage	76	49.0	60.3	60.3
	encourage	22	14.2	17.5	77.8
	discourage	17	11.0	13.5	91.3
	strongly discourage	11	7.1	8.7	100.0
	Total	126	81.3	100.0	
Missing	0	29	18.7		
Total		155	100.0		

**Table 7.2 Tradition as factor influencing SC development in NCI**

From Table 7.2, 60.3% of the respondents asserts that tradition strongly encourages SC development and 17.5% noted that it encourages, which brings the total respondents that think tradition encourages SC development to 77.8%. 13.5% and 17.9% were recorded as

respondents that think it discourages and strongly discourages respectively. This brings the total number of respondents that said it discourages to 22.2%. It could be observed, as shown in Tables 7.1 and 7.2, respondents see culture and the traditional values and norms of an organisation as the same, as their responses seem to be the same as shown by the similarity of the figures in both tables. This supports the existing literatures (Hofstede, 1984; Hibbert and Huxham 2010; Fellow and Liu 2015; Mao *et al.* 2017) definition of organisational culture and tradition. In the semi-structured interview, similar question was asked for a better understanding of the context and subject matter. See semi-structured interview sample (Appendix G: main interview questions, Section A, Question 5a). The question reads; “The place of SC development and improvement in the overall corporate strategy of the company: is there any defined policy for the development of SC of managers and supervisors in particular?” All the thirty (30) participants, which signifies 100%, emphasized that there is strategies and policies in their respective organisations for development and implementation of SC for managers and supervisors. In summary, they elaborated that SC development is a strategy to increase organisational performance which is more of a tradition in their respective organisations. They provided more details on how SC development and preservation is part of the overall corporate strategy of their respective organisations. The interview revealed that SC development is believed to enhance performance, which is the mission of every organisation, and culture of an organisation is naturally developed around performance, which literally means that culture and tradition encourages the development of SC. This result is important for organisations, HR managers, trainers, project managers and others involved in planning and implementing SC development of managers and supervisors to understand and consider the influence of their organisational culture and tradition in their overall SC development programmes.

#### **7.10. Infrastructure and Organisational Structure**

Another essential aspect for implementing skills, knowledge and competences programme is the development of an appropriate organisational infrastructure. Davenport *et al.* (1998) clarified that this implies the establishing of roles and teams to perform skills, knowledge and competences development related tasks. Although some existing functions within the HRM and IT departments of some organisations have already been dealing with skills, knowledge and competences related issues, creating a unit with the specific and formal responsibilities

of managing skills, knowledge and competences development and improvement is crucial (Wang, 2005).

One officer commonly known as skills development officer or its equivalent can be used. S/he takes a leading role in coordinating, managing and setting the course for skills, knowledge and competences development (Abell and Oxbrow 1999; Earl and Scott 1999; Herschel and Nemati, 2000; Davenport and Volpel, 2001; and Grover and Davenport, 2001). Large organisations with more resources can establish a full unit with multiple layers of roles for skills, knowledge and competences development. SMEs and start-ups will probably need to take a smaller scale approach.

#### **7.10.1 Organisational Structure as Critical Success Factors (CSF) in Skills and Competences (SC) Development in Nigerian Construction Industry (NCI)**

There is a link between appropriate organisational structure, culture and performance (Too and Weaver, 2014). Organisational structure as posited by Maduenyi *et al.* (2015), has no meaning without a well-conceived organisational culture and an appropriate system. They were of the view that the type of structure adopted by an organisation is determined by the type of the organisation, its goals and objectives. Giving more details, they explained that the type of organisational structure is defined by the hierarchy, roles, responsibilities, accountability, distribution of authority and pattern of communication. Simply put, organisational structure is the established pattern of relationship among components of the organisation. Organisations are structured to attain and support the development of cultural values and norms, which enables them attain their goals and objectives (Maduenyi *et al.* 2015). This research seeks to understand how these key areas impact the development of SC in an organisation.

From the result of their research, Zbirenko and Andersson (2014) concluded that organisational structure is about leadership and communication, and leadership affects the entire employees and how they strive to achieve their goals, while communication affects how fast things get done and how pleased and willing employees are. Additionally, they noted that development issues, personal issues, structure, communication, leadership, and organisational performance, all have effects on each other. Hence, organisational structure affects developing of SC.

Rate organisational structure as a factor that influences the development of SC					
		Frequency	Percent	Valid Percent	Cumulative Percent
<b>VALID</b>	strongly encourage	68	43.9	54.0	54.0
	encourage	29	18.7	23.0	77.0
	discourage	18	11.6	14.3	91.3
	strongly discourage	11	7.1	8.7	100.0
	Total	126	81.3	100.0	
<b>MISSING</b>		29	18.7		
<b>TOTAL</b>		155	100.0		

**Table 7.3 Organisational structure as an influencing factor in SC development in NCI**

In Table 7.3, respondents were asked to rate organisational structure as a factor that influences the development of SC in the NCI with (1) meaning strongly encourage and (4) meaning strongly discourage. 54% of the respondents asserted that it strongly encourages, while 23% opined that it encourages, which brings the total number of respondents that think it encourages SC development to 77%. About 14.3% are of the view that it discourages, while 8.7% see it as strongly discourage. This brings the total number of respondents that said it discourages to 23%. The response of construction professionals supports the existing literature (Too and Weaver, 2014; Zbirenko and Anderson, 2014; Maduenyi *et al.* 2015) that organisational structure encourages and promote SC development. This result correlates with that of organisational culture and tradition. The inferences is for trainers, organisations, project and HR managers is that these three organisational factors should form part of SC development strategy and programme.

The interview was used to understand the effect that organisational structure has on the development of SC in Nigeria. Most interviewees responding to influence of organisation structure insisted that organisational structure encourages and promotes the development of SC as improved performance is at the center of their organisational goals. Some of the interviewees revealed that some issues of organisational structure like bureaucracy could discourage the development of SC. Thanem (2014) had argued that issues like bureaucracy and nepotism are more of leadership challenges rather than that of the organisational structure.



### **7.11. Other CSF That Encourage SC Development in the Nigeria Construction Industry (NCI)**

According to Hauschild *et al.* (2001) contribution, a successful SC development strategy requires the development of a grass root desire among staff to tap into their organisation's intellectual resources. If people are not motivated to engage in SC development, no type of investment, technological and infrastructural intervention will make it effective. Therefore, it is very important to establish an inspiring incentive, reward and motivational system as an important success factor. It is a good way to encourage workers to develop skills, as well as apply and share the knowledge. Giving incentives to employees generally helps motivate and stimulate them for better performance and reinforce the culture of positive behaviours needed for effective skills, knowledge and competences development programme. But before giving incentives, the management must seek to understand what motivates their managers and supervisors. The findings of this study as indicated in Section 8.13 listed some factors that encourage the Nigerian construction professionals to develop and improve their SC.

Considering Wang's (2005) conclusion, to build a skill, knowledge and competences-based enterprise, incentive schemes should focus on criteria such as skills development and improvement, knowledge sharing and contribution, creativity and innovative solutions, as well as teamwork. To ensure people are expressive and forthcoming, Yahya and Goh (2002) suggested that the motivation and support schemes should be designed to reward risk-taking attitudes and it should also emphasis group-based compensation. To be specific, rewarding workers with a group performance focus will encourage a higher level of team-working skills, knowledge and competences exchange among them. Hauschild *et al.* (2001) emphasized this notion when they stated that workers will be more inclined to contribute and seek knowledge and skills, if they are motivated and supported based on goals that they influenced as a team, not ones they achieved individually. Rewarding workers solely on individual contribution and performance or outcome can result in competition and will certainly be detrimental to SC development because of the negative impact it will have on the knowledge sharing culture.

On monetary strategy of motivation and support, Wang (2005) is of the view that the provision of either monetary or nonmonetary supports should be attached into a reward scheme that supports skills, knowledge and competences development. Furthermore, efforts

to motivate workers and recognise their contributions to skills, knowledge and competences development should also be tied to workers' annual performance review. This infers treating skills, knowledge and competences development initiatives as vital criteria in a worker's performance assessment and evaluation system (Wang, 2005).

From the survey conducted, Tables 7.4, 7.5, 7.6 and 7.7 reveal factors that motivate managers and supervisors involved in managing construction projects in Nigeria. In the tables below, is the list of factors that could encourage or discourage the development and improvement of SC in Nigeria. Respondents were asked to rate by their preference, in a likert scale, with 1, as strongly encourage factor and 4, strongly discourage.

#### 7.11.1. Obtaining Certified Qualification as a CSF Influencing SC development in NCI

Obtaining Certified Qualification as a CSF Influencing SC development in NCI					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
<b>VALID</b>	Strongly Encourage	104	67.1	71.2	71.2
	Encourage	24	15.5	16.4	87.7
	Strongly discourage	2	1.3	1.4	89.0
	Discourage	16	10.3	11.0	100.0
	Total	146	94.2	100.0	
<b>MISSING</b>		9	5.8		
<b>TOTAL</b>		155	100.0		

**Table 7.4 Certified qualification as a CSF in SC development in NCI**

From the table 7.4, 71.2% and 16.4% of respondents noted that obtaining certified qualification is a factor that strongly encourages and encourages them respectively. Only 1.4% and 11% noted it strongly discourages or discourages them. A total of 87.6% of respondents noted this as an influencing factor. This implies that obtaining certified qualification is a critical success factor in SC development among the Nigerian construction professionals. Hence, training providers, organisations, project and HR managers should place more emphasis on the certification after training. Professional construction organisations like Nigerian Society of Engineers and others should ensure that all providers of SC development programmes

affiliate themselves with reputation academic institutions in construction management to enable them award a more reputable and quality certification to SC development participants.

#### 7.11.2. Obtaining Respect of Peers as a Factor Influencing Skills and Competence Development and Improvement in Nigeria.

Obtaining Respect of Peers as a Factor Influencing Skills and Competence Development and improvement in Nigeria.					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
<b>VALID</b>	Strongly Encourage	63	40.6	43.2	43.2
	Encourage	43	27.7	29.5	72.6
	Strongly Discourage	2	1.3	1.4	74.0
	Discourage	38	24.5	26.0	100.0
	Total	146	94.2	100.0	
<b>MISSING</b>		9	5.8		
<b>TOTAL</b>		155	100.0		

**Table 7.5 Respect of peers as a CSF in SC development in the NCI**

From the table above, 43.2% and 29.5% of respondents noted that obtaining the respect of others is a factor that strongly encourages or encourages them respectively. 26% and 1.4% of respondents noted obtaining respect of others discourages them or strongly discourages them respectively. A total of 72.7% of respondents noted this as an influencing factor. This implies that obtaining the respect of peers is a critical success factor in SC development and improvement among the Nigerian construction professionals. This result shows that Nigerian construction professionals are keen on how they are perceived by people around them. Managers and supervisors want to make references to the SC development programmes that they have participated and are competent in, they cherish the admiration, recognition and perhaps confidence that comes with attending such qualification. It is now important for training providers and organisation to acknowledge and apply this as another motivating factor for SC development in the NCI. This result indicates to organisations and trainers, and supports Ojochide *et al.* (2018) position that Nigeria is a perceptive society and this culture influences every human endeavour in Nigeria.

7.11.3. Promotion and career development as a factor Influencing SC development and improvement in Nigeria

Promotion and career development as a factor Influencing skill & competence development and improvement in Nigeria					
		Frequency	Percentage%	Valid Percentage %	Cumulative Percentage %
<b>VALID</b>	Strongly Encourage	113	72.9	89.7	89.7
	Encourage	12	7.7	9.5	99.2
	Discourage	1	.6	.8	100.0
	Total	126	81.3	100.0	
<b>MISSING</b>		29	18.7		
<b>TOTAL</b>		155	100.0		

**Table 7.6 Promotion and career development as CSF in SC development in the NCI**

From the table above, 87.7% and 9.5% of respondents noted that promotion and career development is a factor that strongly encourages or encourages them respectively to participate in SC development and improvement. Less than 1% noted it does not encourage them. A total of 97.2% of respondents noted this as an influencing factor. This implies that promotion and career development is a critical success factor in SC development and improvement among Nigerian construction professionals. This corroborate Odia and Ogiedu (2013) that professional choices are inspired by career development in Nigeria. It is important for organisations, project and HR managers to recognised this in their SC development strategy. Plans should be made by the organisation for managers and supervisors who have undergone SC development and has demonstrated competences applying these SC to be encouraged and appreciated through promotions, and further supports for career development. This will mitigate the risk and challenge of losing these managers and supervisors to competitors after their SC development as discussed in section 4.1.9 of this study. This result has also revealed that Nigerian construction professionals are career driven professionals as 97% indicated that promotion and career development is very important to them and it encourages their aspirations for continuous professional development.

7.11.4. Willingness to learn as a Factor Influencing SC development and improvement in Nigeria

Willingness to learn as a Factor Influencing SC development and improvement in Nigeria					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage %
<b>VALID</b>	Strongly Encourage	108	69.7	89.3	89.3
	Encourage	12	7.7	9.9	99.2
	Discourage	1	.6	.8	100.0
	Total	121	78.1	100.0	
<b>MISSING</b>	0	34	21.9		
<b>TOTAL</b>		155	100.0		

**Table 7.7 Willingness to learn as a CSF in SC development in the NCI**

From the table above, 89.3% and 9.9% of respondents noted that willingness to learn new things is a factor that strongly encourages or encourages them to participate in SC development and improvement in Nigeria while less than 1% think it does not. A total of 99.2% of respondents noted this as an influencing factor. This implies that willingness to learn is a critical success factor in SC development among the Nigerian construction professionals.

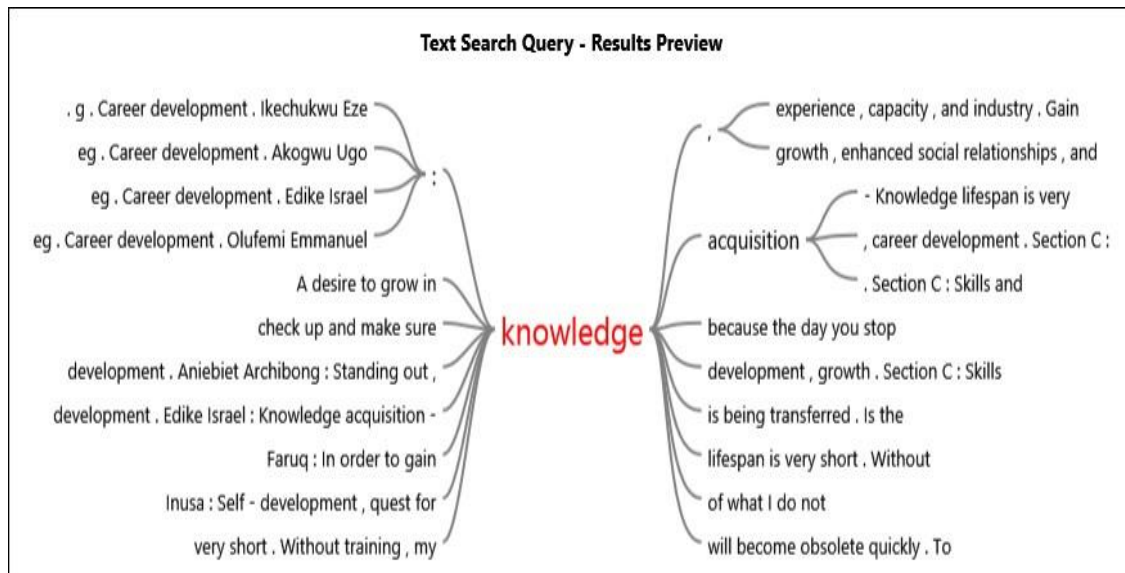
Queries from the interview conducted revealed all the 30 participants talking about career, knowledge and development as critical success factors for development and improvement of SC. This corroborates the survey results as outlined in the tables 7.7.

Figure 7.1 shows these commonly used words by the 30 participants during the interview when asked what factors inspire them to participate in SC development and improvement. The sizes of the words in the figure below indicates how often participants mentioned it during the interview.



**Figure 7.1 Query of CSF in SC development in the NCI**

This collaborates the questionnaire survey that *skills, knowledge and abilities* otherwise known as competences are developed through *training* for recognition *promotion and career development* are the key CSF why construction professionals in Nigeria embark on training and other forms of professional development.



**Figure 7.2 Text search shows how participants used “Knowledge” while responding too CSF**

The results from table 7.4 and figure 7.1 and 7.2 is fascinating as it implies that the NCI professionals are lovers of knowledge and learning. This revelation will encourage organisations, project and HR managers to invest required resources in SC development of managers and supervisors having the understanding that these professionals considers this investment as an opportunity for further learning, career development, promotion and respect.

From the rates in Tables 7.1, 7.2, 7.3 and 7.4, it can be observed that the survey respondents distinguished willingness to learn, promotion and career development, certified qualification and respect of peers in this order, as critical success factors in SC development and improvement in the NCI. It is worthy to note that willingness to learn which will produce certified qualification, influences promotion and career development which guarantees respect in the NCI. These CSF influences the minds of construction managers in Nigeria and should be taken into serious consideration by employers, professional construction organisations (PCO), trainers and academia. Motives and motivations for SC development

should be designed to align with these CSF and others from the literature discussed above (Section 7.11). Consequently, it could be said that willingness to learn, acquiring certified knowledge, career development and promotion are the most important CSF in SC development (Odia and Ogedu, 2013). A summarized copy of the conclusions and recommendations of this study will be sent to the NSE and other construction organisations, as a reward for participating in this study. They will be encouraged to invest in their professionals and realize the benefits of construction management SC development to their respective interest and that of the NCI at large.

### **7.12. Summary**

This chapter addressed the second and seventh objectives of this research. It explained that those practices and activities that are critical and, when well implemented, ensure the successful development and improvement of SC of supervisors and managers. They are the critical success factors for construction industry professionals for the NCI. They include leadership management and support, ICT, strategy and purpose, review and measurement, resource, elementary orientation and education, HRM, enterprise and entrepreneurial SC.

From the findings in this study, willingness to learn, promotion and career development, obtaining certified qualification and obtaining respect of peers are critical success factors of SC development in the NCI. In the listed ranking order, willingness to learn is rated the most motivating factor and obtaining respect of peers the least motivating factor influencing SC development and improvement in the NCI. Organisational culture and structure are other established CSFs in SC development in the NCI.

With these analysed findings of this study, the next chapter will develop and validate a framework and a set of guidelines for the development and improvement of managerial SC in the NCI.

## **Chapter 8:**

### **Developing and Validating a Framework and its sets of Supporting Guidelines for Skills and Competences (SC) Development in Nigerian Construction Industry (NCI)**

#### **8.0. Introduction**

In Section 2.11, the purpose of SC development framework was discussed. This chapter discusses the development and validation of the SC development framework and developed set of supporting guidelines which was slightly discussed in section 3.5. This is the aim of this study. This was achieved through the following process; first, the stages and methods of conducting this research were used to develop a pilot framework, which is the first draft and skeleton of the framework development process (see Section 2.14 and Fig.2.5). This was necessary to demonstrate the process and stages involved in this study as well as developing the framework. The objectives of this study were discussed and tested by the professionals in the NCI to establish and understand the gap between the literature and the NCI. The findings from the data collected from the industry through questionnaires and semi-structured interviews were used to develop the draft framework. The draft framework and its set of supporting guidelines was developed through the analysis of data gathered from NCI and patterns modelled out from the pilot framework. The draft framework was then validated through questionnaires.

#### **8.1. Design of the Skills and Competences Development (SCD) Framework**

The SCD Framework defines the categories of personal and performance competence. This is intended to ensure individuals, their organisation, and professional bodies apply an appropriate methodology for the assessment, recognition and development of SC among individual managers and supervisors.

The SCD Framework has been designed to:

- be clear, understandable and straightforward to use.
- cover the range of SC a manager requires for successful performance.
- be used by all managers regardless of the size, nature, type, or complexity of projects.

Being generic in nature, it is necessary to ensure that the SCD Framework is transferable and applicable across industry (Cartwright and Yinger, 2007).



### **8.1.1. Target Audience**

The SCD framework reflects inputs from small, medium and big construction organisations and the entire industry. The framework serves as a reference for organisations to develop and improve construction management SC of their project managers and supervisors. This framework and guidelines are designed for, but is not limited to:

- Project managers
- Site managers and supervisors
- All members of a construction management office
- Senior Management
- Human Resource personnel, organizations and teams
- Educators teaching construction management and other related subjects
- Trainers developing construction management tutorial programmes
- Project and program management industry consultants

### **8.1.2. Structure of the SCD Framework**

The SCD framework structure represents a typical competence standard. It identifies:

- Elements of SC. These consist of several elements which reflect the activities in which managers are expected to be experienced. These include but not limited to decision making, team building, communication, programme design, motivation are the top five most important elements of SC (see section and table 6.8).
- Performance Criteria: Each element is described by performance criteria, which stipulate the outcomes to be achieved to demonstrate competent performance.
- There are different types of evidence which are associated with each of the performance criteria. This forms the basis upon which SC can be self-assessed.

### **8.1.3. Tailoring the Skills and Competences Development (SCD) Framework**

SCD framework is intended to represent the ideal for construction management. It has been designed to be acceptable, applicable to all construction projects all the time. The framework is tailored but not limited to the top twenty SC identified in this study (see Table 6.4).

Organisations must use their own discretion, in accordance with their culture, when customizing the relevant elements of the SCD framework to apply to their business approach. In other words, the SCD framework should be tailored by the organisation to represent their view of strategy on construction management. An organisation may choose to tailor the SCD framework to not only select the SC relevant to their organisation, they may also choose to identify and specify the relative importance of each skill or competence and the required level of mastery of each of them to their operations.

Cautiously, organisations must note that the SCD framework is based on managers and supervisors being competent to manage most projects, most of the time. This is because the more an organisation deviates from this SCD framework, by scaling back its models and guidelines, by diminishing the relative importance of several criteria contained in the SCD Framework, or deselecting elements and the respective performance criteria, the more the organisation risks the managers' competences to perform in other project environments and organisation (Cartwright and Yinger, 2007). To maximize transportability between project environments and organisations, it is strongly encouraged to apply as much as is feasible of the SCD Framework and guidelines exactly.

## **8.2. The Framework**

The process of development, validation and arriving at the final framework involved the following stages;

- a. A thorough review of literature to identify key aspect of the framework was conducted (see chapter 2). Understanding of the meaning of Skills and competences (SC) were established (see section 2.2.1 and 2.2.2) and key SC for construction management was identified and listed (Section 2.2.3). Development and improvement of SC and development strategies and approaches in the literature were discussed (section 2.2.4; 2.2.5; 2.2.6). Also, the review of literatures established challenges of SC development (section 2.2.7).
- b. The views of professionals were elicited in order to contextualize the framework components, all the gaps identified between the literature and the NCI was addressed with focus to the currency and relevance of practice in the NCI.

- c. The draft framework was developed and validated by eliciting the views of potential beneficiaries and professionals in the NCI
- d. Improve the framework after taking on board the views of professionals and beneficiaries through validation of the framework.

### **8.2.1 Duration of Training**

The duration of the training would largely be subject to SC sets desired. This research identified series of SC and they are categorised into 5, 10, 15, 20 most important SCs. The study showed that this top 20 most important SCs need development and improvement and are not difficult to develop. Organisations and trainers should profile the trainees, to identify and understand the need of trainees and skills gaps. The training sessions should be as concise as possible and there should be 15- or 30-mins refreshing break for every one- or two-hours training sessions respectively.

### **8.2.2. Admission Requirement**

The only entry requirement is membership of Nigerian Society of Engineers or any other acknowledged professional construction organisation. At managerial and supervisory level, membership of a professional body like NSE is necessary because of the stringent membership requirements like basic education, professional experience and code of ethics they demand of their members. This is the best level for entry into this training. Students of construction related programmes who hope to manage or supervise projects and other potential trainees should be urged to join a professional construction organisation like NSE as membership is necessary for admittance into training for SC required in managing construction projects. Fresh graduates who intend to pursue a career in construction management should be attached to work under an experienced manager and his/her supervision for the five years' mandatory experience building period required for election as a member of NSE or similar construction organisations.

### **8.2.3. Education, Training and Practice Stage**

#### **8.2.3.1. Education**

According to Fryer (2004), education builds the ability and capacity of one to think and judge objectively; consequently, potential trainees should have acquired the basics for productive a

SC development and improvement training. This was supported by Syben (2008) and ITSJ's (2014) observation that education simplifies and enables a well-informed and knowledgeable approach and strategy to practical problems, it also provides a rudimentary platform for SC development. With the general education acquired, SC focused education is required in skills training to guarantee that the needs and peculiarities of the construction industry are taken into consideration. Less emphasis should be given to general courses like Mathematics, Physics and Chemistry while more emphasis should be given to SC that covers materials, principles, enterprises and other construction management SC (Faherty, 2015). The education should involve social networking, psychological confidence boosting, reporting and basic communication. This is needed for profiling and identification of SC gap in an individual.

#### 8.2.3.2. Training and Practice

It is the aim and objectives of this stage to change both the attitude and behaviour of the trainee. The principal goal is to ensure that the SC are developed and improved in an efficient and effective way. The trainer should be resourceful and up to date with recent global practice and academics. The trainees should be involved in SC training designed to develop the SC and therefore accomplish significant change in the way construction projects are managed by them. The training session must basically be practical in nature and not just theoretical as is the current practice. Trainees must be shown the what and how of construction management. The trainers must begin the training with simple demonstrations describing what to do and how it should be done (Rothwell *et al.* 2018). All questions on who does what, when and where must be explicitly answered by the trainer. At training sessions, the trainer should take time to slowly demonstrate the SC in bits for the trainees to understand and learn the steps in the skills they are being taught. Every training session is to be trailed immediately with take-home assignments and industrial practical opportunities to enable the trainees to internalise the new knowledge. These practices and assignments should be done under the observation and assessment of a trainer at a convenient pace to ensure the test-task is performed correctly and the SC observed and scored accurately. During practice, trainees must make conscious effort to replicate all that the trainer demonstrated. Practice should include individual and group sessions to develop and assess how the trainee applies the acquired SC as an individual and as a team. Training should be sited and delivered in a simulated environment as close as possible to real life situations. This ensures that no aspect

of the taught SC is left out. Before the completion of training is certified, both the trainer and trainee should ensure that the SC is performed repeatedly, in the most updated way and almost effortlessly to engrave the SC in the mind and habit of the trainee.

These should be achieved through the provision of the necessary resources and materials for further development and practice to enable the trainee study and rehearse on their own.

#### **8.2.4. Experience Stage**

Unlike the training programme that requires the collaboration of the industry and training institutions or trainers, the experience stage only requires direct collaboration between the trainee and the industry. At this stage, the instilled training is completely focused to the construction industry. At this stage of the training, the industrial experience becomes the trainer and the trainee is exposed to applying the acquired SC in real management of construction projects under supervision and reporting directly to an experienced senior manager.

The key steps to follow in ensuring that most relevant experiences are acquired by trainees are already being executed by NSE and most of the professional construction organisations through their mandatory five-years corporate experience membership requirement. But more needs to be done to maximize this 5-years' experience period. A graduate member of NSE or other PCO's hoping to meet the requirement for an election to corporate membership status should be employed, mentored and tutored by a more experienced and qualified member.

The experiences acquired in construction management SC would facilitate the eventual SC development trainings. A corporate member of NSE who is involved in managing any construction project should collaborate with the trainer and continue to use the project for his/her experience stage.

A corporate member not involved in any on-going project would be required to find a project, engage and fully participate in it, even as an attaché, volunteer or in the worst-case scenario, as a visitor.

### **8.3. Validation of Skills and Competences Development (SCD) Framework and Guidelines**

The draft framework and guidelines (see Appendix H) were developed through the findings and analysis of data gathered from the NCI and patterns modelled out in the pilot framework. The validated framework and a set of guidelines (section 8.5) were an improvement on the draft framework and guidelines gotten from the opinions and inputs of the NCI professionals. A questionnaire (see Appendix I) and a copy the draft framework and guidelines were sent to the NCI professionals. Participants were selected from all levels of management. The framework was validated by giving due cognizance to the following areas;

1. The framework's comprehensive and robust
2. Logical, if people can follow it
3. Perceived to be of value and of use
4. Areas of further improvement (where necessary)

This was necessary to make the framework thorough, detailed and to remove bias.

Among the other possible methods of validations, the researcher and ten (10) of the participants chose to validate the framework through questionnaire (see Appendix G). From the thirty (30) participants that were interviewed during the collection of data, ten participants among those who indicated interest to participate in the validation exercise were contacted for the validation process. They unanimously chose questionnaire because it will give them abundant time to study the framework and guidelines before responding to the questionnaires. Seventy-two hours was given to them study the framework and the set of guidelines as well as to respond to four structured questions that reflected: comprehension, robustness, acceptability and area for improvement. The comments, observations and outcome of the questionnaire were incorporated in the final framework and guidelines.

The aim of this questionnaire was to validate the proposed framework and guidelines in terms of their appropriateness for targeted practitioners. According to Lawrence (2003) as cited by Bapir (2012), validity means truthfulness, referring to the bridge between theory and practicability. Bryman (2008) agreed with this when he observed that validity is the integrity of the finding of a research study. The essence of the validation of a framework is to

determine that it correctly represents the social concerns to which the research was set to address in the first place (Hammersley, 1997).

Similarly, Flick (2014) and Gagliardi *et al.* (2011) stated that the validation function has been met once it is demonstrated that a proposed framework or guidelines has relevance and it has more strengths and less weaknesses than any other existing framework. Hence, this research conducted survey to validate the proposed framework. All the questions were structured to address the objectives of the validation process. A copy of the framework and guidelines accompanied the survey questionnaire which was given to the respondents to study and then answer four simple open-ended questions in the survey.

The explicit objectives of the validation were as follows:

- i. Evaluating the suitability and significance of the components of the proposed framework and guidelines;
- ii. Assessing the fundamental logic in the underlying relationships between the different components of the framework and guidelines.
- iii. Measuring the usefulness, practicality and applicability of the proposed framework and guidelines in the construction industry; and
- iv. Evaluating the strengths and weaknesses of the proposed frameworks and guidelines.

### **8.3.1. Characteristics of Participants in the Validation of SCD Framework**

A total of ten participants from ten different organisations (all members of NSE) were involved in the validation survey. Of the ten (10) participants selected, three (3) were Executive directors and CEO, four (4) were project managers and project engineers and the last three (3) were site engineers, managers and supervisors. This was necessary to ensure that the views of different levels of management were captured, as was the case during the survey and main interviews. All the ten validation participants were selected based on the in-depth of responses they gave during the main interview and their indicated willingness to participate in the validation interviews.

Being members of NSE meant that none of the participants had less than five-year experience; with the project managers and CEOs having an average of ten and fifteen years of construction management experiences respectively (see Section 3.4.6).

### 8.3.2 Contribution from Validators

The questions asked and the responses given by the respondents are summarized, presented and discussed below.

QUESTION 1 - What is your opinion on this training framework?	
Respondent	Quoted Comments
Respondent V01	“It should be developed and made public to encourage concerned organisations to key into it”
Respondent V02	“adequate”
Respondent V03	“Good and should be implemented”
Respondent V04	“It is an important aspect of managing construction project. It helps in actualizing a set goal”
Respondent V05	“It is good and urgently needed’.
Respondent V06	“The framework and its purpose should be sustained”.
Respondent V07, V08, V09	“good”
Respondent V10	“The guidelines are detailed, apt and properly articulated and would bring a renaissance in the construction sector, mostly in a developing world where there is much training gaps”.

**Table 8.1 Validators’ opinion on SC development framework**

From the responses above, ten of the respondents are unanimous in their opinions that the framework is detailed, good, important, adequate, needed and should be implemented and sustained in a developing industry like the NCI. Their opinions reflect their support for a construction management SCD framework, which some of them see as long overdue for the development of SC in the NCI. Respondent V01 suggested an awareness campaign to inform organisations about it and to encourage them to adopt it. Respondent V04 thinks this is necessary as the SCD framework is very important in construction management as it is a major factor in actualization of project goals. These contributions in Table 8.1 implies that the SCD framework is detailed, apt, articulated to bring development of important SC of construction



management in the NCI for organisations and individual managers of construction projects at all management levels.

<b>QUESTION 2 - What is important to you and is missing in this framework?</b>	
<b>Respondent</b>	<b>Quoted Comments</b>
Respondent V01	<i>“Nothing in particular, but further research should be recommended for continuous improvement please”</i>
Respondent V02	<i>“Training should be more practical and give more practical exposure to the trainee”</i>
Respondent V03	<i>*had nothing to add*</i>
Respondent V04	<i>“the trainer should be purged of all dimensions of sentiments, including religious, tribal, ethnic and cultural sentiment”</i>
Respondent V05	<i>“Women should be separated from disabled managers and gender difference is not a disability”.</i>
Respondent V06	<i>*championed the sustainability of the framework*</i>
Respondent V07, V08	<i>*had nothing to add*</i>
Respondent V09	<i>“Government should introduce one-year intensive practical training after graduation as practiced in medical profession”</i>
Respondent V10	<i>“an understanding of fiscal responsibility of the clients should be incorporated in the training especially the ones involving the young managers”.</i>

**Table 8.2 Important but missing from this framework \* not direct quote\***

The respondents advocated for further study for continuous improvement of the SCD framework. The advocacy for more practical approach to SC development was made, and a recommendation that government should introduce a one-year mandatory practical training for SC development as obtainable in the medical sector is a demonstration of how important practical aspect of SC development is to managers in the NCI. Sensitive and divisive issues like politics, religion, tradition was strongly advised against by the respondents. Where gender issues were raised, respondents recommended it should be separated from issues relating to the physically challenged individuals. This was necessary to avoid the misinterpretation and mixing the issue.

**QUESTION 3 - Do you think the framework can be applied and what can be done to make them more acceptable and applicable in the Nigerian construction industry?**

<b>Respondent</b>	<b>Quoted Comments</b>
Respondent V01	<i>“Yes, it can be applied in our construction. To make it more acceptable, we need to do more on awareness, that is explanation through sharing of the knowledge to people who are directly or indirectly involved”.</i>
Respondent V02	<i>“Yes, it can be applied in the construction industry but companies must make it a part of their policy framework”.</i>
Respondent V03	<i>“Yes, proper legislation through the Federal Ministry of Labour and Productivity and House of Representatives, every construction labour employer should be made to adhere to this framework”.</i>
Respondent V04	<i>“Yes, it can be applied accordingly. Government agencies and PCOs should cooperate and coordinate awareness and compliance of all private organisations”.</i>
Respondent V05	<i>“yes”</i>
Respondent V06	<i>“Yes, it can be applied with advocacy campaign and public enlightenment”.</i>
Respondent V07, V08, V09	<i>“yes”</i>
Respondent V10	<i>“Yes, the framework in my own opinion is not just quite applicable but also implementable. For acceptability, the various bodies in the building and construction services need to synergise”.</i>

**Table 8.3 Is the framework applicable in the NCI?**

All the respondents consider the framework acceptable and recommended educative awareness, legislation for more construction professionals to understand, appreciate and implement the framework; it should be a policy in every construction organisation in Nigeria. All the PCO in Nigeria should synergize to adopt and implement the framework on a professional scale.

**QUESTION 4 - :** Is there any observation or recommendation you will like to add or remove from the framework?

Respondent	Quoted Comments
Respondent V01	<i>“Women should not be presented in the same sentence with physically challenged people”</i>
Respondent V02	<i>“the framework and guidelines is perfect for the industry”</i>
Respondent V03	<i>“the picture and table should be more appealing and attractive”</i>
Respondent V04	<i>“...all aspects and levels of management should be carried along and trained in organisations”</i>
Respondent V05	<i>“there should be clarification on what a big corporation is and that the experience stage should be separate from practice stage”</i>
Respondent V06	<i>“Practical engagement after training is very important”.</i>
Respondent V07, V08	<i>*none*</i>
Respondent V09	<i>“Regulatory bodies like COREN and ARCON should work with PCO to ensure managing personnel are trained”.</i>
Respondent V10	<i>“developing a comprehensive follow up module will help the experienced managers and supervisors measure the progress and applications of the knowledge gained during the trainings”</i>

**Table 8.4 Validators’ observations and recommendations**

Respondents recommended that all levels of managers in construction management in Nigeria should be trained before selecting any level of management. A clarification of what a medium and big corporation is was advocated. According to The European Union’s European Commission and the U.S. Small Business Administration, medium and big corporation have over one and ten thousand employees respectively. These views of all the ten respondents were used to incorporated in the relevant parts of the draft framework (Appendix H) which produced the validated framework and a set of guidelines.

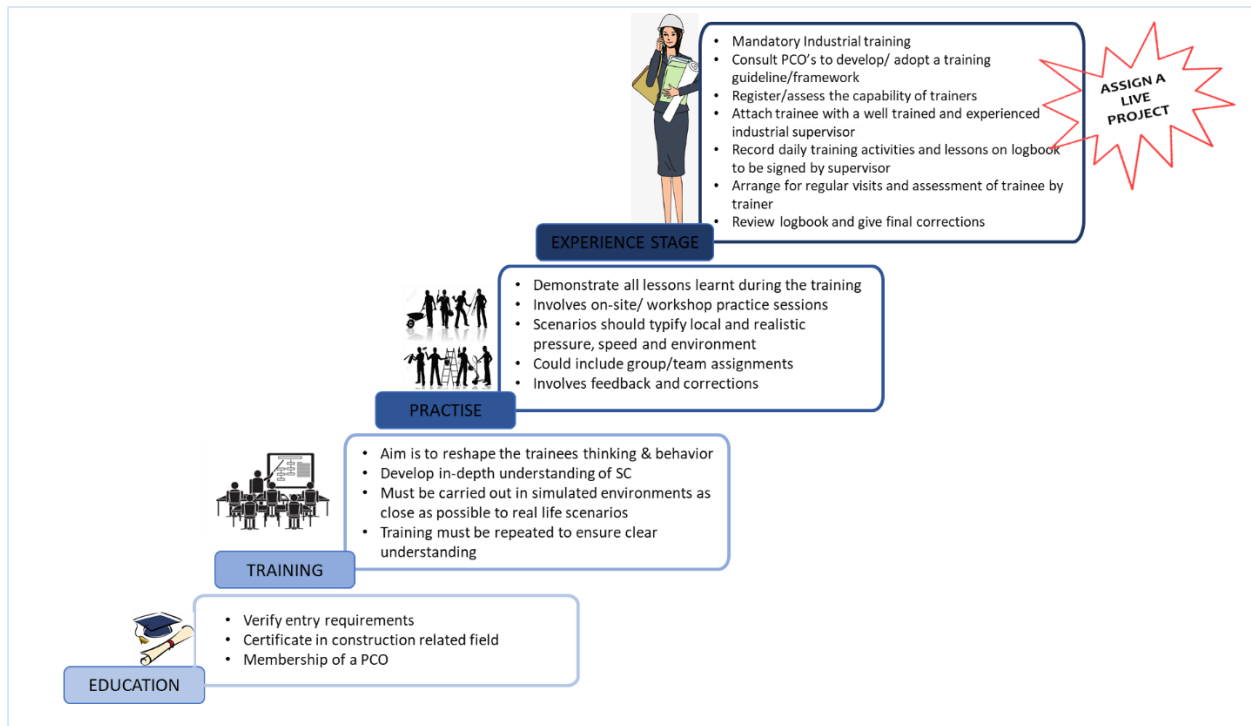
## 8.4. Validated Framework and Guidelines Supporting Skills and Competences Development

### 8.4.1. Framework

<b>STAGE 1 - EDUCATION</b>			
<b>Description</b>	<b>Activities</b>	<b>Who is Responsible for Outcome</b>	
<p>This stage emphasises the focus and importance of education. It deals with ascertaining that the education that helps in preparing the trainee for a career in construction management is acquired. The lessons that the trainee received in the tertiary and high schools come to bear here. Trainee undergoes classroom-like teaching of theories which richly cover the SC they are being trained for.</p>	<p>Identify relevant general education courses that will prepare the trainees mind and develop his/her understanding of the SC in focus. Identify trainers with requisite knowledge and who are up to date in their SC proficiency to deliver the training.</p> <p>The industry, trainers and professional organisations like NSE should jointly develop curriculum and expected performance outcomes and monitor the quality and outcomes of the trainings.</p>	<p>Trainers, Professional construction organisations like NSE must work together to monitor and ensure that each does what is expected of them.</p>	<p>The trainee must have basic knowledge in the built environment, understand and can successfully apply the developed SC in any given work environment.</p>
<b>STAGE 2: TRAINING</b>			
<b>Description</b>	<b>Activities</b>	<b>Who is Responsible for Outcome</b>	
<p>This is the focus. The goal of this stage is to reshape the thinking, attitude and behaviour of the trainee from unskilled to skilled and then competent.</p>	<ol style="list-style-type: none"> <li>1. Elaborately describe the SC and procedure of applying it.</li> <li>2. Break the procedures of application into smaller simple steps.</li> <li>3. Use real-life examples to demonstrate and illustrate.</li> <li>4. Repeat difficult areas as often as necessary to ensure clear understanding among trainees.</li> <li>5. Give opportunities for trainees to discuss in groups to internalize the knowledge.</li> <li>6. Give opportunity for comments, questions and feedbacks immediately and give corrections</li> </ol>	<p>Trainers or training institutions. Closely monitored by the organised PCO.</p>	<p>The trainee must be able to solve some mental case studies. The emphasis should be on the ability to adhere to correct the procedure in applying any SC.</p>
<b>STAGE 3: PRACTICE</b>			
<b>Description</b>	<b>Activities</b>	<b>Who is Responsible for Outcome</b>	
<p>Effecting the automatic transformation of knowledge, attitude and behaviour is the</p>	<ol style="list-style-type: none"> <li>1. Describe a task and ask the trainee to perform it with the SC taught.</li> <li>2. The task must be in real life scenarios.</li> </ol>	<p>Trainers, and Training Institutions, closely monitored by</p>	<p>Trainee should execute assigned task with limited or no coaching, just observation.</p>

aim at this stage of the training. In some cases, activities of practice can run simultaneously with those of the training.	3. Repeat task with more local and realistic pressure, speed and environment. 4. Observe and obtain feedbacks, then make corrections where necessary.	organised PCO.	Trainee should be encouraged to independently use his/her judgement to perform the task. Assessment is based on the outcome of the task performed.
<b>STAGE 4: EXPERIENCE</b>			
<b>Description</b>	<b>Activities</b>	<b>Who is Responsible for Outcome</b>	
This is an industrial stage; it provides an opportunity for the trainee to perform real-time task on real project, thus learning, developing and improving the SC especially, those that are practical based or can only be learnt working on real project situation.	1. Assess organisation for industrial training, 2. Enter a formal training agreement or Memorandum of Understanding with the organisation before training starts. 3. Directly introduce trainee to organisation, then to his/her industry supervisor. 4. Ensure logbooks are used to record daily training activities and must be checked and verified by the industry supervisor. 5. Trainer must arrange regular interval visits to ensure the trainee is actively engaged in areas of training. 6. For training lasting longer than three months, arrange for trainee visits to the trainer for appraisals and further instructions.	Trainer, training organisation, professional bodies, trade union, the entire construction industry.	Trainee must be fully engaged in a reputable organisation, learning and working as a full-time staff under realistic working environment, supervised by an experienced senior officer who is the industry supervisor.
<b>STAGE 5: MANAGE A PROJECT</b>			
<b>Description</b>	<b>Activities</b>	<b>Who is Responsible for Outcome</b>	
After successfully completing an industrial training, this stage requires the trainee to manage and lead the execution of a live project. Certification can be issued before or after this stage.	The trainee can lead the management of a live construction project. S/he might decide to regularly consult his/her mentor, the trainer or training institute, if need be.	Trainee, trainer	Trainee can lead a construction management team to express his/her developed or improved SC freely without instruction or observation, just consultation, if need be.

**Table 8.5 Skills and Competences Development (SCD) Framework for construction managers in Nigeria**



**Legends:** Training to last between 1 -30 days to at most 6 months depending on number of SC

**Fig.8.1 SC Development Framework for construction managers in Nigeria**

## 8.4.2. Guidelines Supporting Skills and Competences Development (SCD) Framework

### 8.4.2.1. General Steps

#### Step 1: Assess Performance

At this step of SC development process, the most experienced and senior manager or an external consultant will act as the assessor of the manager.

The competence of the manager is assessed and profiled using the SCD framework as the baseline competences required. The SCD Framework is designed to apply generically to all managers, irrespective of the project's nature, size, type or complexity. The purpose of Step 1 is to identify a manager's areas of strength and where further SCD is required.

After the introductory education, a measurement and review of trainee's performance is carried out to give an assessment on the top important SC. Evidence needs to be collected to determine whether the performance criteria of every SC have been met. The assessment levels themselves can be defined simply. Levels of performance could, for example, be expressed as: Below Expectation; Meets Expectation; Exceeds Expectation.

Strong SC demonstrated by the trainee are identified and noted especially, where performance is seen to meet or exceed the SCD framework criteria. Skills gap and development needs, where performance results do not meet the SCD framework criteria, should similarly be recognized and noted. The results of the assessment and review should be recorded in an Assessment Log.

Wherever shortfall exists, it is necessary to clearly describe this and to define the development needed. If at any time during the assessment process there appears to be a gap in SC which are exposing the project currently being managed to risk, the assessor will need to immediately initiate actions to address the gap by highlight and escalating the gap, the consequences and the urgency through the relevant channel.

Assessment can be individual based against individual performance criteria or group based.

### **Step 2: Prepare Skill and Competence Development (SCD) Plan**

After the completion of the assessment, an SCD plan which prescribes actions to be undertaken by the senior/project manager, skills to be developed, offering the opportunities necessary to achieve the required development should be prepared. This plan will use the information gathered in Step 1 to address the development needs of the individual manager and to build on existing strengths.

The findings of the assessment should be treated urgently, as there may be issues identified by the assessment that would require immediate corrective action. Also, the plan should be prioritized to address key areas which are most critical to the individual manager and organisation. Once the areas have been prioritized, a realistic timeline for implementation of the plan needs to be established. The focus on the high priority (Table 6.1) SC, which were identified as requiring training, should be designed to be effective and implementable.

The purpose of a plan is to guide the organisation toward their desired goals. Organisations should strive to address the key areas that will provide maximum improvement benefits regarding the 20 most important SC as presented in Table 6.1 rather than attempting to focus on all the possible issues at once.

### **Step 3: Implement Skills and Competences Development (SCD) Plan and Complete Activities**

Activities planned in Step 2 are conducted. These activities will need to consider both the priorities, needs culture of the organisation and those of the ongoing project(s). These activities should be tracked and monitored against the SCD plan. The Senior/project manager owns this plan and is responsible for delivering the outcomes. The project manager needs to execute and monitor this plan just as a project plan would be executed and monitored.

This process allows development activities and the methods of assessment to be adapted to suit training or performance assessment requirements. The entry and exit points of this process will depend on the objectives of the senior/project manager and/or project organisation.

#### **8.4.2.2. Guideline for Training and Trainee**

- i. Training should be conducted with most recent internationally and locally accepted standards and resources, in a supportive environment; and there should be opportunity for interactive and practical sessions for focus groups during training and at intervals.
- ii. Training should be more practical and technical not just theoretical as it is in the current practice. Valuable certificates, recognisable by the professional construction organisations, academia, government and the entire industry should be awarded after the successful completion of training.
- iii. Training on scheduling and planning, trainees should be made to understand that finances, resources, time and quality are not only to be controlled but also monitored and properly accounted for, to avoid project failure.
- iv. Cost of training should be subsidised and big corporations should statutorily sponsor training as part of their corporate social responsibilities.
- v. People with special need like differently-abled workers who are largely discriminated against in the construction industry should be adequately protected and catered for in befitting area of need.
- vi. Understanding the use of computer applications, software and information technology generally should be emphasized. The same guidelines apply for online training and should be followed as such, but arrangement should be made for onsite practical, industrial training and group assignments.



vii. Different people with different background and ideologies are involved in construction projects. It is important that dialogue, negotiation, diplomacy and guild of adjudicators be employed to deal with any conflict or misunderstanding during training and execution of projects.

viii. The entrepreneurial side of all SC should be emphasized to promote independent practice and create job opportunities. Technopreneur, which is the use of latest and updated technology to train managers and help them create jobs for others through the application technological innovations should be adopted in SCD.

ix. Managers and supervisors should be encouraged to focus on developing SC and gaining experiences, as monetary gains and profits will naturally follow soon. They must be made to first and foremost develop the needed interest and passion for the profession. This prepares and reorients their mind and attitude towards better reception of the knowledge and to become services oriented.

x. Trainees should be made to understand that training is a continuous process, that knowledge is power and should be constantly updated and knowledge shared as necessary. This is because every profession is a living and growing profession, which means it has tendencies to grow or metamorphose during evolution of the industry.

xi. Women should be encouraged in the NCI and during trainings, all forms of gender discrimination should be discouraged in the industry and during trainings.

#### **8.4.2.3. Guidelines for the Trainer**

i. The trainers, training institutions and programmes should be improved and equipped for resourceful, updating and technical trainings.

ii. There should be clarity of purpose and responsibility in all agreements entered for training. Training should be tailored to suit the SC gaps. Skills should also be focused on market demand and needs, and challenges.

- iii. While maintaining global best practice, local creativity, talent and contents should be sourced and encouraged. Trainers should seek to identify the core skill strength of the trainee, advice and build on it individually to improve on career guidance.
- iv. The trainer should be purged of all dimensions of sentiments, including the religious, tribal, ethnic and cultural. These can affect the trainer's sense of judgement and the handling of the beliefs and values of the trainee.
- v. Trainers should, while applying these guidelines, study and adopt the code of engineering ethics of Nigerian Society of Engineers (NSE) and that of other professional construction organisations (PCO), global best practices and guidelines for training in the industry.

#### **8.4.2.4. Guidelines for Professional Construction Organisations PCO and organisations (private and public)**

- i. Private and public organisations should be compelled by the Industrial Training Fund (ITF), as a condition for certification, to update the knowledge, skills and competences of their workforce as deemed necessary by the activities in industry. They should profile their workforce to identify SC gaps.
- ii. Organisations should ensure that their trained senior managers are attached or assigned a junior or new manager for guidance related to work and career development. The mentor serves as a coach facilitating the continuous professional development of the trainee by helping to identify skills, competences gap and training needs and other professional aspirations. This is a kind of knowledge sharing.
- iii. Private and public organisations should see the need to hire specialists and experts to train their unskilled workers at little or no direct cost to the workers. They should diversify roles and responsibilities according to task and insist that roles and responsibilities are assigned based on discipline, area of training and specialization. This will enable and enhance productivity.
- iv. There should be more training and seminar awareness through the PCO to get intending trainees informed. Government should empower PCO to jointly monitor the

industry, implement and enforce their code of conducts, ethical standards and possibly, the framework developed through this study.

v. There is need for discussions and Interactions among colleagues and senior professionals in construction management to acquire more knowledge and share experience. More experienced managers should be encouraged to pass on their knowledge to younger managers before and after retirement. Technical excursions, as currently practised by NSE branches nationwide, should be encouraged and improved on. International industrial training as annually practised by NSE, should be sustained and enhanced.

vi. Professional construction organisations should work with government and local authorities to secure project and training sites in a non-volatile part of the country. They should sponsor, help enact and enforce all necessary legislations, policies and regulations. All cultural, religious and traditional norms and values of the locality must be taken into consideration at the planning and execution of training and projects.

vii. Government and organisations should work together to approve study or training leave with pay and allowances for any construction manager or supervisor who requests to embark on any relevant training. PCO should compel members not to leave an organisation for a minimum of two years after being trained by such an organisation, especially, where the training is sponsored by the said organisation. Where it is unavoidable, training remuneration should be settled and refunded to employer before the worker can leave.

viii. Government through her agencies like COREN, ARCON, COBON and professional construction organisations like NSE, NICE, NIA, NIOB and others, should harmonise and issue renewable license of practice to any individual or organisation that intends to and is qualified to establish SC training centre.

iv. Professional construction organisations should investigate and do more to protect the integrity of the profession and the interest of their members by ensuring that the quality and cost of training delivered by trainers are of best possible value, creation and protection of jobs, especially, those lost to quacks through unenforced policies and legislations.

x. This study, just like Zou and Sunindijo (2013), suggests that construction organisations incorporate the training of at least the top twenty SC, and knowledge sharing policy in their

human resource development programmes and that tertiary education institutions also consider these SC in their construction management related curriculum.

## **8.5. Summary**

This chapter addressed the aim of this study by critically developing SC development framework, it discussed who the framework and guidelines are designed for, how it can be applied and by who.

The SCD framework was developed with the evidences gathered from this research study, it is clear, straightforward and understandable. It captured SC need of managers in NCI as revealed in Sections 6.8, 6.9 and 6.10. The targeted participants are project executives, project managers, site managers and supervisors, all members of construction management office, professional construction organisations, trainers and human resources of every construction organisation. SCD framework represents the ideal for construction management. It is acceptable, applicable to all construction projects all the time. The framework is tailored to but not limited to the top twenty important SC (Tables 6.1) SC that need development (Table 6.2) and difficult SC (Table 6.3) identified in this study. Organisations can use their discretion in accordance to their culture and objectives when applying the SCD framework and the supporting guidelines. Training should be concise and participants should have the basic construction related education in their respective disciplines. Participants are also required to have acquired or exposed to basic construction experience for a minimum period of one year.

The findings of the research were analysed, developed into a framework and then returned to construction professionals for validation. Some of the contributions from the industry which validated the framework were outlined. The guidelines gathered from the Nigerian construction industry for supporting the SC framework were also outlined in this chapter. The validation of the SC framework and its supporting guidelines were done by managers from all levels of management in the NCI.

## **9. CONCLUSIONS AND RECOMMENDATIONS**

### **9.0. Introduction**

A study on improving the supervisory and managerial skills and competences (SC) required for construction management in the Nigerian construction industry (NCI) has been conducted. This chapter focuses on summarizing the aim and objectives of this study. Similarly, this chapter recaps the research methods adopted and presents main research findings. After the presentation of the main conclusions, this chapter ends by presenting recommendations and areas for further study.

### **9.1. The Research Process**

In today's ever-changing and complex world, it has become obvious that even well-developed knowledge and skills are no longer adequate to meet new challenges and problems facing individuals, organisations and even nations. This raises some enormous challenges for project managers and trainers (Illeris, 2012). Among the resources needed to deliver a successful construction project, human resource has been ranked the most important and most challenging to manage by several literatures, due to the inherent characteristics of the construction industry. As Pathirage *et al.* (2005) observed, the industry employs an extremely diverse range of workers from an extensive range of occupational cultures and backgrounds, which includes skilled and unskilled people into managerial and professional positions. The operators, craft-based workers, technicians, bricklayers and others, all need to be properly supervised and managed effectively to ensure both projects succeed.

The review of literature identified that in Nigeria, most researchers listed unskilled and incompetent managers and supervisors as one of the major causes of poor project delivery (Ayodele and Alabi, 2012). Supervisors and managers not only need the required competences but also appropriate constant training, to enable them continuously improve their skills and influence the construction project they are working on (Jensen, 2012). For the industry to perform successfully with the bulk of challenges in both the sector and the global economy, it should embrace the idea of competent worker and competent culture at all levels of organisations.

The review of most existing literatures in chapter two identified these gaps, some discussed steps to be taken to bridge the gaps, but seemingly, none outlined the structure and methods to effectively do so. Thus, this study developed and validated a framework and set of guidelines for

the improvement of SC in managing and supervising construction projects in view of enhancing the performance of construction managers and supervisors.

In all, the research was designed to address the following objectives:

1. To critically review the literature in the general areas of managerial and supervisory skills and competence development, improvement and impact, with specific reference to the construction industry.
2. To critically examine the factors (including culture, organisational structures, and motivational constructs) that promote or discourage skills development and improvement among construction managers.
3. To investigate the challenges associated with skills and competences development and improvement approaches currently in practice within the construction industry in Nigeria.
4. To explore and document the impact that effective skills and competences development and improvement have on project outcomes in construction.
5. To investigate the efficiency of developing skills and subsequently improving competence in delivering successful construction project.
6. To explore and document the skills and competences improvement approaches currently in practice in Nigeria; examine their effectiveness and compare both scenarios. In doing so, document lessons learned and good practices.
7. To examine and document the critical success factor (CSF) to effective skills and competences development and improvement in construction sectors.
8. To develop and validate a framework for the development of supervisory and managerial skills and competence in the Nigerian construction industry.
9. To develop and validate a set of guidelines which support the developed framework.

The study was also guided by some research questions (section 1.2). To fulfil the aim and objectives of this research, as mentioned above, the study employed an in-depth review of the literature, the distribution and collection of twenty (20) questionnaires for the pilot survey, and one hundred and fifty-five (155) useable questionnaires for the main survey. Thirty 30 semi-structured interviews

were also conducted with active members of the Nigeria Society of Engineers who are managing and supervising construction projects in both small, medium and large construction firms.

Finally, the study focused on producing a framework for developing and improving SC for managers and supervisors of Nigerian construction projects. This framework was then validated using questionnaires (Appendix I).

## **9.2. Conclusions of the Research**

The key conclusions drawn from the research study are presented in the following subsections.

### **9.2.1. Construction Management Skills and Competences (SC)**

Among many established roles and responsibilities of managers and supervisors, the literature revealed that increased job performance is realistic when managers and supervisors encourage and support SC development among the workforce. They also play an important role in the motivation of the workforce (see Section 2.8).

Skill is one of the three cardinals of the human capitals required for the successful delivery of any construction project. It is the ability acquired by learning to methodologically execute a task that has pre-determined results, mostly with budgeted resources and scheduled time (Section 2.1). Basic skills are general skills for all construction practitioners while core skills are skills managers and supervisors must possess to deliver on their responsibilities. A manager and supervisor needs to develop and update both basic and core skills to succeed (see Section 6.8).

Competence is the second of the three underlying cardinals of the human capital. It is the assessment and sufficiency of expected occupational knowledge, attitude, skills capacity and ability an individual possesses and how the individual combines and demonstrates these attributes to satisfactorily perform his or her task. The literature established a distinction between SC. Unlike skills which guarantee inputs, competences are defined by outcomes rather than inputs. Competences are the behaviours people demonstrate that enable them do their jobs effectively while skills apply particularly to those professional components required by the job. What people can do and deliver makes them competent, which is different from how they learn to do it, which is the skills.

The review of literature established that one of the main problems in the construction industry is the limited degree of learning. It offered that for the construction industry to solve this problem

and achieve the highest standard and best value; there is emergent importance and urgency already placed on learning through effective development of skills, thereby improving the competences of managers and supervisors.

### **9.2.2. Construction Management Skills and Competences (SC) in Nigerian Construction Industry (NCI)**

Project success should be defined by all project stakeholders, objectives and goals clearly marked, for a clear understanding of how and when it will be met. This study affirms project success as in three main categories of time, cost and quality. A project must satisfy its objectives and goals in these three areas to be successful. The influence of SC improves the chances of project outcome to meet these three important success criteria.

All the 57 SC identified in the literature are important in managing construction projects and need development and improvement. This study has identified, in their order of relevance, the top twenty important SC (Table 6.1) and top twenty SC difficult to apply (Table 6.2) and the top twenty SC that need development in the NCI (6.3).

SC that were ranked in both the top twenty important and the top twenty SC that need development, in no order of preference, are team building, communication, programme design, motivation, programme maintenance, supervision of others, quality control/assurance, employee training, creativity, leadership, company law, construction law, recruit/select, health and safety, material planning and control, manpower planning and control. It is very important to note that only employee training was ranked in all the top twenty of Tables 6.1, 6.2 and 6.3. This shows how important and challenging respondents regard the training of managers in NCI, for it to be in the top twenty important SC, top twenty difficult SC and top twenty SC that need development. Organisations are responsible for SC development and can now use the identified SC to prioritise and profile their managers and supervisors before investing in their development.

### **9.2.3. Challenges with Applying and Developing Skills and Competences (SC) in Nigerian Construction Industry (NCI)**

This study has presented the complexity of challenges associated with practice and development of SC. It, through the literature, recognised lack of effective communication and teamwork as the



most severe challenge associated with practicing SC. This is followed by lack of proper planning, scheduling and directing, understanding, agreement and conflicts, lack of leading creativity, time, technologies and environment, information, communication management and internal management of resources, planning and external challenges,

Challenges and issues facing the development of SC in the construction industry especially in a developing country like Nigeria are numerous; just like in any construction industry around the globe, even though they are less manageable in developing countries. Findings of this research revealed some of the challenges of developing SC in Nigeria and They include; measuring SC attainment and reward system, commitment, values and unguaranteed loyalty of trainees, general education and knowledge sharing culture, political interference, regulation and policies, research, strategy, training infrastructures and established standards, lack of sponsorship and expensive cost of SC development, project budget, corruption and ethical issues.

Not enough has been written towards dealing with these current challenges. Stakeholders in NCI and government have a role to play. With the current challenges, evidence from this study suggest that government should lead right behind the professional organisations in policy making for regulation and enforcement in the industry. For their part, professional construction organisations should ensure researches are encouraged, this is an area for the mitigation of these challenges and the development of an effective approach. Employers should be made to bear the cost of the employee SC development.

#### **9.2.4. Impact of Effective Skills and Competences (SC) Development on Project Success in Nigerian Construction Industry (NCI)**

Project success should be defined by all project stakeholders, objectives and goals clearly marked, for a clear understanding of how and when it will be met. This study identifies project success as in three main categories of time, cost and quality. A project must satisfy its objectives and goals in these three areas to be successful. The influence of SC improves the chances of project outcome to meet these three important success criteria.

This study affirms findings of the existing literature that SC development improves the extent to which critical success factors of construction management influence project outcome. This study confirmed that SC increase the success rate of the project and reduces money spent through prudent spending and attention to details. Impact of SC on project guarantees a successful

outcome but a not well-developed SC would have a devastating opposite effect. SC development help save time, cost, guarantees quality and successful delivery, with the aim of protecting and promoting the image of their organisations.

#### **9.2.5. Efficacy of Skills and Competences (SC) Development Approach**

This research confirmed that factors like organisational structure, culture, motivation, are all influencing factor in the development and improvement of SC. The study established that willingness to learn, promotion and career development, obtaining certified qualification and obtaining the respect of peers, in this order, are all influencing motivational factors of SC development. Findings of the research revealed that training is the SC development approach in Nigeria and it is effective, and a global practice for the development of SC in managing construction projects. The quality of training in Nigeria is average, satisfactory and a global standard, but the NCI is calling for more improvement in the quality of training and that employers should bear the responsibility of funding SC development. From the revelation of this study, it was concluded that the quality content of the SC development in NCI is acceptable but the enabling circumstances like lack of sponsorship for the development is not.

Currently, because of high unemployment rate, Nigeria is encouraging entrepreneurial approach in the development of SC.

#### **9.2.6. Critical Success Factors (CSF) to Effective Skills and Competences (SC) Development in Nigerian Construction Industry (NCI)**

This study has addressed its second and seventh objectives by explaining that those practices and activities that are critical and, when well implemented, ensure successful development and improvement of SC of managers and supervisors are the critical success factors. They were extensively discussed These include leadership management and support, ICT, strategy and purpose, review and measurement, resource, elementary orientation and education, HRM, enterprise and entrepreneurial SC.

Evidence from this study, reveals willingness to learn, promotion and career development, obtaining certified qualification and obtaining respect of peers are critical success factors of SC development in the NCI in the listed ranking order, with “willingness to learn” rated the most motivating critical success factor and obtaining respect of peers the least motivating factor

influencing SC development and improvement in NCI. The study confirmed that *skills, knowledge and abilities*, otherwise known as competences, are developed in Nigeria through *training*, and managers in NCI participate in SC training for recognition, *promotion* and *career development*.

It is worth noting that willingness to learn produces certified qualification which influences promotion and career development in the Nigerian labour market. These CSF influence the minds of construction managers in Nigeria and should be taken into serious consideration by employers, professional construction organisations (PCO), trainers and the academia. Motives and motivations for SC development should be designed to align with these CSF and those from the literature discussed above (Section 7.11). Willingness to learn, acquiring certified knowledge, career development and promotion are the most important CSF in SC development in the Nigerian construction industry. Organisational culture and structure are other established CSF in SC development in NCI.

#### **9.2.7. Developing and Validating Skills and Competences (SC) Development Framework and sets of Guidelines that support the Framework**

A developing economy like Nigeria, with myriads of challenges and abuse of laws and privileges, needs a holistic and detailed approach to the development of SC. In response to this, this study has developed a framework and a set of guidelines that supports the framework for the development and improvement of the SC of construction management in the Nigerian construction industry. The main aim of this study was to develop and validate SC development framework and a set of guidelines that support the developed framework, It discussed who the framework and guidelines are designed for, how it can be applied and by whom. The SCD framework was developed from the analysis of data gathered from this research study. It is clear, straightforward and understandable. It captured SC need of managers in the NCI as revealed in Sections 6.8, 6.9 and 6.10. The targeted participants are project executives, project managers, site managers and supervisors, all members of construction management office, professional construction organisations, trainers and human resources managers of every construction organisation.

The SCD framework represents the ideal for construction management. The framework and its supporting guidelines are acceptable and applicable to all construction projects all the time as validated. They were developed through an opinion process that cut across areas of concern and interest and can enhance continuous improvement in construction industry. The framework is

tailored but not limited to the top twenty important SC (Tables 6.1), SC that need development (Table 6.2) and difficult SC (Table 6.3) identified in this study. Organisations should use their discretion in accordance to their culture and objectives when applying the SCD framework and guidelines. Training should be concise and participants should have the basic construction related education in their respective disciplines. Participants are also required to have acquired or been exposed to basic construction experience for a minimum period of one year.

The developed framework and its set of supporting guidelines, if properly adopted and followed by the NCI, will have an observable impact through the performance of the managers and supervisors as well as the general project outcomes. The successful implementation of this framework and set of guidelines, however, needs careful consideration of promoting factors, inhibiting factors and challenges, critical success factors, and factors that can impinge on the performance process.

### **9.3. Recommendations**

This study has developed and validated a framework and a set of guidelines for the development and improvement of SC in managing construction projects in Nigeria. Most of the contributions and recommendations of this study form part of the framework and guidelines (Section 8.4). This subsection is adding more recommendations on findings that are not part of the framework or guidelines.

#### **9.3.1. Recommendations for Academics**

The indicators and measures in the development of SC framework and its supporting guidelines for the development of managers and supervisors revealed that affiliation with training institutions for the award of valuable certificates that would be recognised by the academia, professional construction organisations and the entire industry would increase the value of the training.

There is an opportunity for future research on construction management SC, focusing mainly on the management levels and organisational structures, which especially considers large and multinational organisations (with more than 250 employees). Future study could investigate how construction management SC can be profiled and monitored in an organisation. There is need to develop a model for monitoring and identifying SC shortages and gaps in small, medium and large construction organisations.

The use of computer applications, software and information technologies has become the norm in construction management in Nigeria. Students and trainees should be exposed early to the use of computer applications in managing and supervising projects. Future studies could explore how entrepreneurial SC can be developed and promoted among construction professionals to enable them create and manage new inventions, thereby creating wealth and job opportunities in their industry, through the application of technological innovation. Students interested in construction management related career, in their last session in school, should be encouraged to focus on more industrial exposure and experiences gathering. They should be oriented to be more interested and passionate about the profession.

### **9.3.2. Recommendations for the Industry**

After considering the overall findings of this research, the following further recommendations are presented for application in the Nigerian construction industry (NCI). These recommendations are geared toward development and improvement of skills and competences (SC) required in managing construction projects:

Knowledge, skills and understanding are everything when performance is necessary. It is important that organisations, through their human resources department, ensure that the level of commitment, loyalty and trust among their teams is always high. They should identify the knowledge update strategy that would work for them, identify the SC required for every role and profile their managers and supervisors accordingly to close any identified gap. Knowledge sharing and In-house training of managers and supervisors are both effective and cheap. Organisations in Nigeria should adopt this cost saving approach to coach, mentor and transfer knowledge from older and more experienced managers and supervisors to fresh and younger ones. Knowledge is power, knowledge shared is power shared. Training which has been identified as the source of empowerment, should be continuous as knowledge needs to be updated as it is being shared.

Every project is unique, organisations should organise onsite training or project take-off trainings for the managers in every project, intimating them of the culture, tradition and beliefs of the host community, and the uniqueness of the project. This prepares and refreshes their minds on dialogues, negotiations and management strategies to adopt. As Nigeria is a culturally and religiously sensitive state, it is recommended that managers and supervisors take into consideration the cultural, religious values and norms of the local and host communities while planning their

projects and, in some cases, form part of onsite training. From the findings of this research study, although there are trainings for managers and supervisors of construction project in Nigeria, it is essential that specialists and experts are hired by organisations to train their managers and supervisors.

This research discovered that managers and supervisors consider it expensive to fund their training. For the growth and performance of the industry, it is pertinent that the organisations take up the full responsibilities of funding the trainings of their managers and supervisors. Organisations should partner with government through the Industrial Training Fund (ITF). With ITF, three percent (3%) training fund allocated to every public project can be extended to private projects to enable organisations create a funding pool for the training of their workforce, especially, managers and supervisors. As it was established that training is expensive for the Nigerian construction managers and supervisors, the cost of training should be subsidized by the big construction organisations as part of their corporate social responsibilities. Revelations from this study showed that, because we all should invest into the future, organisations should always be willing to grant their managers and supervisors paid study or training leave where necessary, especially, when the training is relevant and will enhance their performances in assigned roles and responsibilities.

For professional classification, specialization and expertise, there is need for the diversification and separation of roles and responsibilities in the entire industry. Architects should handle architecture and engineers should handle engineering roles, likewise quantity surveyors and builders. Where any of them wants a managerial role, such an individual must participate in construction management training and be certified. Awareness of SC development and improvement trainings keeps an individual or an organisation informed and gives them comparative advantage over their competitions. Organisations and their managers and supervisors should stay tuned to the development in construction management SC.

Regulation is the responsibility of government but exceptional cases have been encountered. Professional construction organisations (PCO) like Nigerian Society of Engineers (NSE) and Nigerian Institute of Architects (NIA) should be given the powers through government legislations and backing to enforce their policies, codes of conduct and ethical standards. They should partner with the government to monitor and implement all the best practices in the industry including of course the framework and supporting guidelines developed and validated in this study. Evidence gathered revealed that all government construction agencies like Council for the Regulation of Engineering

in Nigeria (COREN), Architects Registration Council of Nigeria (ARCON), Council of Registered Builders (COBON) and professional construction organisations like Nigerian Society of Engineers (NSE), Nigerian Institute of Civil Engineering (NICE), Nigerian Institute of Quantity Surveyor (NIQS), Nigerian Institute Architects (NIA) and Nigerian Institute of Building (NIOB) should harmonise under one body. The president, Nigerian Institute of Quantity Surveyors, Mr. Obafemi Onashile on Punch Newspaper (2018) suggested Construction Development Council to among other things, regulate, vet, then issue revocable training license to any qualified individual or organisation intending to establish a training centre. Although PCO were mainly established for the welfare of members and continuous professional development, they should do more to protect and preserve the integrity of the profession and the interest of their members. It is recommended that they should ensure that the quality and cost of the training delivered by trainers are of the best possible value. They should focus on helping the industry create and protect jobs for their members. Professional construction organisations like NSE should add it to their ethical standards that members should not resign from an organisation for at least a minimum of three (3) years after being sponsored for training by their organisation.

Technical sessions and excursions, which is the current practice in NSE general meetings and annually, should be sustained and expanded to accommodate interactive session where work related issues and industrial challenges are discussed and shared. Interactive sessions are a good form of generation of creative and innovative ideas and solutions. This is adding to Mukhtar, Amirudin and Mohamad's (2016) recommendation, which calls on professional construction organisations to organise regular conferences and workshops. This research confirmed that interaction among managers and supervisors in the construction industry is a very productive knowledge sharing and skills development strategy. Professional construction organisations should create focus groups which will be made up of specialist managers and supervisors in the industry to meet at intervals.

It is the recommendation of this study that all aspects of SC training of managers and supervisors be very practical and technical, an approach far from the current theoretical practice. The Chartered Institute of Building (CIOB) recommended that the military possesses similar skills and competences relevant to success of the construction industry. The level of management skills like discipline, commitment, problem solving, ethical standards, teamwork displayed by the military is second to none and needed in today's management of construction projects (CIOB, 2016). It is

strongly recommended that the industry should study and adopt the military approach and strategies in developing and improving the listed SC and similar ones.

#### **9.4. Limitation of the Study**

This study, just like any other, has limitations and challenges. One of these challenges is the data collection process. Nigerians are always on the move and the culture and importance of time, research and development does not resonate much here. On the average, the respondents were reminded four times and many interview appointments were cancelled few minutes to the interviews. Generally, lots of resources were spent on data gathering. The resource allocated to this study was limited and the study was conducted under a time constrained condition. It was difficult to get the attention and acknowledgement of the Nigeria Society of Engineers NSE, whose database was used for collecting data used in this study. A total of eight visits were made to NSE headquarters, with weeks of delays before the response to the letter of introduction delivered to NSE headquarters and over a month of delay to secure approval and the release of the membership database. Some of the respondents skipped some of the questions asked, both in the survey questionnaire and during the interview. Many of the respondents refused to complete their questionnaire even after being prompted five times, thus the researcher had 155 completed questionnaires out of the 500 targeted which only delivered 31% response rate. The interviewees were more willing to participate but there were always issues of rescheduling, postponement and outright cancellation.

Limited access to literatures in SC in construction management also has a negative impact on this research. World-wide literature has been used by the researcher as references and the researcher is hoping that this research will be welcomed as a contribution to SC in construction management in Nigerian industry.



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## LIST OF APPENDICES

### Appendix A – Pilot Survey

March, 2015

Dear Respondent,

I am a PhD student of Construction Management & Economics in School of Built Environment and Architecture of London South Bank University, UK. I am conducting a research study on improving the supervisory and managerial skills and competences required in managing construction projects in Nigeria.

It is the aim of this research to develop and validate a framework and set of guidelines for the development and improvement of skills and competences of supervisors and managers, for carrying out successful projects in Nigeria. Thereby benefit you as a construction project management practitioner or trainer.

To achieve this, this research study needs to be thorough and successful, hence I need your kind support and cooperation to complete the pilot questionnaire and additional questions attached within ten working (10) days.

Please be assured that both your identity and information provided will remain strictly confidential throughout this study and after. The confidential and anonymous treatment of participants' data is considered the norm for the conduct of research at London South Bank University. Your privacy, confidentiality and anonymity will be handled with best practice as required by the University's Code of Practice for Research Degree. The researcher closely supervised the LSBU will ensure that this is achieved.

I remain most grateful for your assistance and contribution to this study.

Yours Faithfully,

Uzor Onyia  
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Email/Postal Questionnaire

Ref.

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Return Address

Uzor Onyia

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Please note that all questions in this questionnaire survey are well structured and designed to address the objectives of this research. It is necessary for this study that all questions are kindly answered but if for any reason you are unwilling or unable to answer any question, please kindly continue with the other questions.

Please remember that as part of the ethical responsibilities of the researcher and LSBU, we are committed to keep your response in this survey strictly confidential.

Skills and Competences in this context refer to all the variables needed in managing a successful construction project in Nigeria.

### **SECTION A: GENERAL INFORMATION**

In each of the questions 1-4, please tick one box [ x ]

1. Is your firm a construction project specialist [  ] Yes [  ] No
2. Which best describes your current position  
[  ] Project Executive/ Director [  ] Project Manager/Engineer  
[  ] Site Manager/ Engineer [  ] Supervisor/Foreman [  ] Others
3. How long have you been involved in managing construction projects in Nigeria  
[  ] Less than 1 year [  ] 1-5 years [  ] 6-10 years [  ] 11-15 years [  ] 16-20 years [  ] More than 20 years
4. How long have you been with your current organisation  
[  ] Less than 1 year [  ] 1-5 years [  ] 6-10 years [  ] 11-15 years [  ] 16-20 years [  ] More than 20 years
5. Career structure. In the space provided below, please list in chronological order, the positions you have held in Nigerian construction industry since you first joined it, and how long you held the post.  
eg. Site Foreman (4yrs)  
1. \_\_\_\_\_ 2. \_\_\_\_\_  
3. \_\_\_\_\_ 4. \_\_\_\_\_  
5. \_\_\_\_\_ 6. \_\_\_\_\_
6. Please indicate below which of the list qualifications you have obtained to date- entering in the appropriate box, the year of achievement. Also, state in full your main area of study in the adjoining box (eg. Building, Civil Engineering, Quantity Survey)

O Level or Equivalent		
Ordinary National Diploma (OND)		
Higher National Diploma (HND)		
B.Tech / B.Eng. B.Sc (1 <sup>st</sup> Degree)		
M.Sc		
PhD		
Professional Institute		
Others		

7. Please write your year of birth 19[\_ \_]

9. What is your sex [ ] M [ ] F

**SECTION B: SKILLS AND COMPETENCES FOR MANAGING CONSTRUCTION PROJECTS**

8. The skills and competences that is needed in managing construction projects are listed below. In Section A indicate the degree of importance of the skills and competences to managing construction projects (please tick [x] one box only)  
 In Section B indicate the degree of difficulty in handling the skills and competence in managing construction projects in Nigeria (please tick [x] one box only)  
 In Section C indicate your need for development and improvement of this skill and competence for managing construction projects (please tick [x] one box only)

SKILLS AND COMPETENCES FOR MANAGING CONSTRUCTION PROJECTS IN NIGERIA	SECTION A				SECTION B				SECTION C			
	IMPORTANCE TO MANAGING CONSTRUCTION PROJECTS				DIFFICULT IN MANAGING CONSTRUCTION PROJECTS				NEED FOR DEVELOPMENT AND IMPROVEMENT IN MANAGING CONSTRUCTION PROJECTS			
	IMPORTANT		NOT		DIFFICULT		NOT		NEEDED		NOT	
	VERY			VERY	VERY			VERY MUCH			VERY MUCH	NOT
1	2	3	4	1	2	3	4	1	2	3	4	
Decision making												
Delegation of responsibilities												
Managing change												
Leadership												
Motivation of others												
Supervision of others												
Team building												
Communication (oral/written)												
Conducting meetings												
Health and Safety												
Employee welfare/counselling												
Managing time												
Managing conflict/crisis												
Materials planning and control												
Manpower planning and control												
Negotiate: main contractor												
Negotiate: subcontractor												
Negotiate: supplier												
Plant planning and control												
Productivity maintenance & control												
Programme design												
Programme maintenance (update)												
Quality control and assurance												
Site organisation												
Site security												
Creativity												
Managing job stress												
Identifying personal strengths & weaknesses												



Costing and estimating														
Budgetary control														
Company accounting														
Sources of finance														
Market research														
Advertising and promotion														
Project insurance														
Forecasting and planning														
Code of practice/working rule agreement														
Construction law														
Company law														
Company strategic planning														
Competitive tendering														
Contract drafting														
Planning law														
Employee training: management														
Employee training: manual labour														
Employee training: supervisor/foreman														
Employment legislation														
Job analysis/specification														
Organisation culture														
Organisation structure														
Organisation of communication system														
Promotion and transfer														
Recruit/select: management														
Recruit/select: sub contractor														
Recruit/select: manual labour														
Recruit/select: supervisor/foreman														
Career development/appraisal														
Client/consumer protection														
Use of computer technology														
Managing local culture/tradition														
Managing religious sentiment														
Negotiate: government agencies														
Negotiate: client/representatives														
Negotiate : trade union														
Public relation														
Competitor awareness														
Foreign language														

9. From the list of skills and competences for managing construction project which you checked under Section B in Question 8 above, select at least 10 skills and competences which you consider difficult to develop in managing construction project in Nigeria and in your opinion offer how you think each of the selected 10 can be efficiently developed for best possible outcome. (You can increase the number to more than 10 and write on overleaf of this page or create an extra page if you are responding via email).

SN	DIFFICULT SKILLS AND COMPETENCES	YOUR OPPINION ON HOW IT CAN BE EFFICIENTLY DEVELOPED
1.		
2.		
3.		
4.		
5.		
6		
7		
8		
9		
10		

10. From the list of skills and competences for managing construction project which you checked under Section C in Question 8 above, select at least 10 skills and competences which you consider need to be developed or/and improved in Nigeria Construction Industry and offer the best approach, strategy or practice to be added to the training programme for better performance, bearing the uniqueness of the Nigeria construction industry in mind. Under Question 10A, please offer approaches, strategies or practices that will best develop or/and improve this skill and competence. Then under Question 10B, please kindly list the challenges that could threaten the application of the approaches, strategies or practices you offered under Question 10A. (You can increase the list to more than 10 and write on overleaf of the pages or create an extra page if you are responding via email.)

		QUESTION 10A	QUESTION 10B
SN	SKILLS AND COMPETENCES THAT NEED TO BE DEVELOPED /IMPROVED	WHAT TO ADD IN THE TRAINING PROGRAMME THAT WILL BEST DEVELOPE AND IMPROVE THIS SKILL / COMPETENCE	CHALLENGES THAT COULD THREATEN THE DEVELOPMENT AND IMPROVEMENT OF THIS SKILL/ COMPETENCE
1.			
2.			
3.			
4.			
5			
6			
7			
8			
9			
10			

11. In question 11 below, list the skills and competences development and improvement approaches been practised in Nigeria. Please rate your preference to these, by ticking [x] the box under the appropriate number or YES/NO. With 1, as much preferred factor and 4, not preferred.

SKILLS AND COMPETENCES DEVELOPMENT AND IMPROVEMENT APPROACH	EFFECTIVE				ITS A GLOBAL PRACTICE	
	VERY		NOT		YES	NO
	1	2	3	4		

12. Is skills and competences development expensive? Yes  No  and who should pay for it

FUNDED BY	PREFERRED			
	MUCH		NOT	
	1	2	3	4
You (Trainee)				
Company				
Government agencies				
Professional/Trade associations				

13. How satisfied are you with the amount and quality of training / skills and competences development programmes) you have received within the last five years. Please tick [x] the appropriate box

Development Programmes	Very satisfied	Satisfied	Fairly satisfied	Not satisfied
Satisfaction to You				
Satisfaction to The projects				

14. In table below, is the list of factors that could encourage or discourage development and improvement of skills and competences in Nigeria, please rate by your preference, by ticking [x] the box under the appropriate number. With 1, as strongly encourage factor and 4, strongly discourage.

FACTORS INFLUENCING SKILLS DEVELOPMENT AND IMPROVEMENT IN NIGERIA	IMPORTANT			
	ENCOURAGE		DISCOURAGE	
	1	2	3	4
Obtaining certified qualification				
Obtaining respect of peers				
Promotion /career development				
Willingness to learn				
Religious inclination				
Cultural believes				
Traditional values/ norm				

## QUESTIONS ABOUT THIS QUESTIONNAIRE

1. What is your opinion on this questionnaire?
2. Was it easy for you to understand the questions asked in this questionnaire?
3. How long did it take to complete this questionnaire?
4. How would you have preferred to receive and return this questionnaire?

## Appendix B – Ethical Approval Acknowledgement

**London South Bank**  
University

Direct line: 020-7815 6025  
E-mail: [mitchen5@lsbu.ac.uk](mailto:mitchen5@lsbu.ac.uk)  
Ref: UREC 1542

**Uzonna Onyia**  
22 Minna Street  
Area 8  
Garki FCT Abuja  
Nigeria

Monday 25 January 2016

Dear Uzonna

**RE: Improving the supervisory and managerial skills and competences required in managing construction projects in Nigeria**

Thank you for submitting this proposal and for your response to the reviewers' comments.

I am pleased to inform you that Full Chair's Approval has been given by Vice Chair, Rachel Taylor, on behalf of the University Research Ethics Committee.

I wish you every success with your research.

Yours sincerely,



Nicola Mitchell

Secretary, LSBU Research Ethics Committee

cc:

Prof Shushma Patel, Chair, LSBU Research Ethics Committee

## Appendix C – Introduction letter from Researcher to NSE

September 15, 2015

The President,  
Nigerian Society of Engineers NSE  
National Engineering Centre  
Central Business District  
Abuja

Dear Sir,

### INTRODUCTION LETTER

I wish to introduce myself as a student of Construction Management & Economics in School of Built Environment and Architecture of London South Bank University, London. Who is conducting a research study on improving the supervisory and managerial skills and competences required in managing construction projects in Nigeria.

My research is aimed to develop and validate a framework and set of guidelines for the development and improvement of skills and competences of engineers who are supervising and managing successful construction projects in Nigeria.

To achieve this, the research needs to be thorough and successful, hence I need your kind support and cooperation to enable him access your membership database and send questionnaires to NSE members.

Please be assured that as a student, I am under obligation to keep the identity and information gotten from the NSE database strictly confidential throughout my study and after. The confidential and anonymous treatment of participants' data is considered the norm for the conduct of research at London South Bank University. The entitlements of all members to privacy must be recognized and their rights to confidentiality and anonymity will be accorded to them. My supervisor and I have put some measures to ensure that this is achieved.

Thank you for your anticipated contribution to this study.

Yours Faithfully,



UZOR ONYIA

## Appendix D – Introduction letter from Supervisor to NSE



The President,  
Nigerian Society of Engineers NSE  
National Engineering Centre  
Central Business District, Abuja, Nigeria



17<sup>th</sup> September 2015

Dear Sir,

### INTRODUCTION LETTER - MR. UZONNA ONYIA

I wish to introduce the above named student of Construction Management & Economics in School of Built Environment and Architecture, London South Bank University, London, UK. Who is conducting a research study on "Improving the supervisory and managerial skills and competences required in managing construction projects in Nigeria".

The student's research is aimed at developing and validating a framework and set of guidelines for the development and improvement of skills and competences of engineers who are supervising and managing successful construction projects in Nigeria.

To achieve this, this research needs to be thorough and robust, hence the student needs your kind support and cooperation to enable him access your membership database and send questionnaires to NSE members.

Please be assured that the student is under obligation to keep the identity and information obtained from the NSE database strictly confidential throughout his study and after. The confidential and anonymous treatment of participants' data is considered the norm for the conduct of research at London South Bank University, UK. The entitlements of all members to privacy must be recognised and their rights to confidentiality and anonymity will be accorded to them. The researcher and his supervisor have put some measures to ensure that this is achieved.

Thank you for your anticipated contribution and support to this study.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Emmanuel Charles Egbu".

Professor Charles Egbu *PhD FRICS FCIQB FAPM FRSA FHEA*  
Dean of School of the Built Environment and architecture  
London South Bank University  
103 Borough Road, London SE1 0AA, England, UK  
Tel: +44(0)2078158302  
Email: [egbuc@lsbu.ac.uk](mailto:egbuc@lsbu.ac.uk)



## Appendix E – Responds letter from NSE backing the Research



# The Nigerian Society of Engineers

National Headquarters: National Engineering Centre, (Off National Mosque-Labour House Road) Central Area P.M.B. 13866, Wuse Abuja.  
Tel: 234 (09) 2917720, email: info@nse.org.ng, website: www.nse.org.ng  
NSE Liaison Office, Lagos: National Engineering Centre, 1 Engineering Close, P.O. Box 72667, Victoria Island, Lagos, Nigeria.  
Tel: (01) 4540215, email: lagosliaison@nse.org.ng

NSE/HQ/MEM/10/15/68

21<sup>st</sup> October 2015



## TO WHOM IT MAY CONCERN

### LETTER OF REFERENCE: MR. UZONNA ONYIA

The above subject matter refers.

**Mr. Uzonna Onyia** is an postgraduate student of Construction Management and Economics from London South Bank University, London, UK.

He is conducting a research study on **"improving the supervisory and managerial skills and competence required in managing construction project in Nigeria"**

This research work is a mandatory prerequisite for his graduation from his institution of study; hence we implore you to accord him all necessary enabling opportunities to acquire the basic knowledge needed for this purpose.

It is pertinent to note that, this research work would cover a time frame of six months, and all necessary information gathered from the questionnaire would be kept highly confidential.

Thanking you in anticipation for your kind consideration and maximum co-operation in making his study a success.

Kindly accept the assurances of our highest esteem.

Yours faithfully,  
For: **The Nigerian Society of Engineers**

**Engr. Olusola Obadimu, MNSE**  
Executive Secretary

## Appendix F – Main Study Questionnaire with Cover Letter



UREC NO. 1542

### IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN MANAGING CONSTRUCTION PROJECTS IN NIGERIA

January, 2016

Dear Respondent,

I am a PhD student of Construction Management & Economics in School of Built Environment and Architecture of London South Bank University, UK. I am conducting a research study on improving the supervisory and managerial skills and competences required in managing construction projects in Nigeria.

It is the aim of this research to develop and validate a framework and set of guidelines for the development and improvement of skills and competences of supervisors and managers, for carrying out successful projects in Nigeria. Thereby benefit you as a construction project management practitioner or trainer.

To achieve this, this research study needs to be thorough and successful, hence I need your kind support and cooperation to complete the questionnaire attached within ten working (10) days.

Please be assured that your identity and the information you will provide, will be treated with utmost confidentiality during and after the study. This is the norm for the conduct of research at London South Bank University. Your privacy, confidentiality and anonymity will be managed through strict adherence to the University's Code of Practice for Research Degree. And the entire process will be closely monitored by the University through my supervisor.

I remain most grateful for your assistance and contribution to this study.

Yours Faithfully,

Uzor Onyia  
Researcher  
[onyiau@lsbu.ac.uk](mailto:onyiau@lsbu.ac.uk)

Prof. Charles Egbu  
Supervisor  
[c.o.egbu@lsbu.ac.uk](mailto:c.o.egbu@lsbu.ac.uk)

**Estimated Time of Completion: 25mins**



UREC NO. 1542

IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN MANAGING CONSTRUCTION PROJECTS IN NIGERIA

Email/Postal Questionnaire

Ref. [ ][ ][ ][ ][ ]

Return Address
Uzor Onyia
Researcher
onyiau@lsbu.ac.uk
08051663658

Please note that all questions in this questionnaire survey are well structured and designed to address the objectives of this research. It is necessary for this study that all questions are kindly answered but if for any reason you are unwilling or unable to answer any question, please kindly continue with the other questions. Please remember that as part of the ethical responsibilities of the researcher and LSBU, we are committed to keep your response in this survey strictly confidential.

Skills and Competences in this context refer to all the variables needed in managing a successful construction project in Nigeria.

SECTION A: GENERAL INFORMATION

In each of the questions 1-4, please tick one box [ x ]

- 1. Is your firm a construction project specialist [ ] Yes [ ] No
2. Which best describes your current position [ ] Project Executive/ Director [ ] Project Manager/Engineer [ ] Site Manager/ Engineer [ ] Supervisor/Foreman [ ] Others
3. How long have you been involved in managing construction projects in Nigeria [ ] Less than 1 year [ ] 1-5 years [ ] 6-10 years [ ] 11-15 years [ ] 16-20 years [ ] More than 20 years
4. How long have you been with your current organisation [ ] Less than 1 year [ ] 1-5 years [ ] 6-10 years [ ] 11-15 years [ ] 16-20 years [ ] More than 20 years
5. Career structure. In the space provided below, please list in chronological order, the positions you have held in Nigerian construction industry since you first joined it, and how long you held the post. E.g. Site Foreman (4yrs)
6. Please indicate below which of the list qualifications you have obtained to date- entering in the appropriate box, the year of achievement. Also, state in full your main area of study in the adjoining box (eg. Building, Civil Engineering, Quantity Survey)

Table with 3 columns and 8 rows listing qualifications: O Level or Equivalent, Ordinary National Diploma (OND), Higher National Diploma (HND), B.Tech / B.Eng. B.Sc (1st Degree), M.Sc, PhD, Professional Institute, Others.

- 7. Please write your year of birth 19[ ][ ] 9. What is your sex [ ] M [ ]

IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN  
MANAGING CONSTRUCTION PROJECTS IN NIGERIA

**SECTION B: SKILLS AND COMPETENCES FOR MANAGING CONSTRUCTION PROJECTS**

8. The skills and competences that is needed in managing construction projects are listed below.

In Section A indicate the degree of importance of the skills and competences to managing construction projects (please tick [x] one box only)

In Section B indicate the extent of difficulty in applying the skills and competences in construction management in Nigeria (please tick [x] one box of this likert scale only, with 1 = very difficult, 2= difficult, 3= fairly difficult, 4= not difficult)

In Section C indicate the need for development and improvement of this skill and competence for managing construction projects (please tick [x] one box of this likert scale only, with 1= high need, 2= need, 3= fair need, 4= no need)

SKILLS AND COMPETENCES FOR MANAGING CONSTRUCTION PROJECTS IN NIGERIA	SECTION A				SECTION B				SECTION C			
	IMPORTANCE TO MANAGING CONSTRUCTION PROJECTS				DIFFICULT IN MANAGING CONSTRUCTION PROJECTS				NEED FOR DEVELOPMENT AND IMPROVEMENT IN MANAGING CONSTRUCTION PROJECTS			
	IMPORTANT		NOT		DIFFICULT		NOT		NEED		NOT	
	1	2	3	4	1	2	3	4	1	2	3	4
Decision making												
Delegation of responsibilities												
Managing change												
Leadership												
Motivation of others												
Supervision of others												
Team building												
Communication (oral/written)												
Conducting meetings												
Health and Safety												
Employee welfare/counselling												
Managing time												
Managing conflict/crisis												
Materials planning and control												
Managing job stress												
Manpower planning and control												
Negotiate: main contractor												
Negotiate: subcontractor												
Negotiate: supplier												
Plant planning and control												
Productivity maintenance & control												
Programme design												
Programme maintenance (update)												
Quality control and assurance												
Site organisation												
Site security												
Creativity												
Identifying personal strengths & weaknesses												
Foreign language												

IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN  
MANAGING CONSTRUCTION PROJECTS IN NIGERIA

SKILLS AND COMPETENCES FOR MANAGING CONSTRUCTION PROJECTS IN NIGERIA	SECTION A				SECTION B				SECTION C			
	IMPORTANCE TO MANAGING CONSTRUCTION PROJECTS				DIFFICULT IN MANAGING CONSTRUCTION PROJECTS				NEED FOR DEVELOPMENT AND IMPROVEMENT IN MANAGING CONSTRUCTION PROJECTS			
	IMPORTANT		NOT		DIFFICULT		NOT		NEEDED		NOT	
	VERY	NOT	VERY	NOT	VERY	NOT	VERY	NOT	VERY	MUCH	NOT	NOT
1	2	3	4	1	2	3	4	1	2	3	4	
Costing and estimating												
Budgetary control												
Company accounting												
Sources of finance												
Market research												
Advertising and promotion												
Project insurance												
Forecasting and planning												
Code of practice/working rule agreement												
Construction law												
Company law												
Company strategic planning												
Competitive tendering												
Contract drafting												
Planning law												
Employee training: management												
Employee training: manual labour												
Employee training: supervisor/foreman												
Employment legislation												
Job analysis/specification												
Organisation culture												
Organisation structure												
Organisation of communication system												
Promotion and transfer												
Recruit/select: management												
Recruit/select: sub-contractor												
Recruit/select: manual labour												
Recruit/select: supervisor/foreman												
Career development/appraisal												
Client/consumer protection												
Use of computer technology												
Managing local culture/tradition												
Managing religious sentiment												
Negotiate: government agencies												
Negotiate: client/representatives												
Negotiate : trade union												
Public relation												
Competitor awareness												

IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN  
MANAGING CONSTRUCTION PROJECTS IN NIGERIA

9. From the list of skills and competences for managing construction project which you checked under Section B in Question 8 above, select at least 5 skills and competences which you consider difficult to develop in managing construction project in Nigeria and in your opinion offer how you think each of the selected 5 can be efficiently developed for best possible outcome. (You can increase the number to more than 5 and write on the overleaf of this page or create an extra page if you are responding via email).

SN	DIFFICULT SKILLS AND COMPETENCES	YOUR OPPINION ON HOW IT CAN BE EFFICIENTLY DEVELOPED
1.		
2.		
3.		
4.		
5.		

**IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN  
MANAGING CONSTRUCTION PROJECTS IN NIGERIA**

10. From the list of skills and competences for managing construction project which you checked under Section C in Question 8 above, select at least 5 skills and competences which you consider need to be developed or/and improved (through training) in Nigeria Construction Industry and offer the best approach, strategy or practice to be added to the training programme for better performance, bearing the uniqueness of the Nigeria construction industry in mind. Under Question 10A, please offer approaches, strategies or practices that will best develop or/and improve this skill and competence. Then under Question 10B, please kindly list the challenges that could threaten the application of the approaches, strategies or practices you offered under Question 10A. (You can increase the list to more than 5 and write on overleaf of the pages or create an extra page if you are responding via email.)

S N	SKILLS AND COMPETENCES THAT NEED TO BE DEVELOPED /IMPROVED	QUESTION 10A	QUESTION 10B
		WHAT TO ADD IN THE TRAINING PROGRAMME THAT WILL BEST DEVELOPE AND IMPROVE THIS SKILL / COMPETENCE	CHALLENGES THAT COULD THREATEN THE DEVELOPMENT AND IMPROVEMENT OF THIS SKILL/ COMPETENCE
1.			
2.			
3.			
4.			
5			

11. In question 11 below, list the skills and competences development and improvement approaches currently practised in Nigeria. Please rate the effectiveness of this development approach by ticking [x] the box under the appropriate number. With 1, as very effective and 4, not effective.

SKILLS AND COMPETENCES DEVELOPMENT AND IMPROVEMENT APPROACH	EFFECTIVE				ITS A GLOBAL PRACTICE	
	VERY		NOT		YES	NO
	1	2	3	4		

IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN  
MANAGING CONSTRUCTION PROJECTS IN NIGERIA

12. Are skills and competences development expensive? Yes  No  ;  
And who should pay for it?

FUNDED BY	PREFERRED			
	MUCH		NOT	
	1	2	3	4
You (Trainee)				
Company				
Government agencies				
Professional/Trade associations				

13. How satisfied are you with the quality of training / skills and competences development programmes) you have received within the last five years. Please tick [x] the appropriate box

Development Programmes	Very satisfied	Satisfied	Fairly satisfied	Not satisfied
Satisfaction to You				
Satisfaction to the projects				

14. In table below, is the list of factors that could encourage or discourage development and improvement of skills and competences in Nigeria. Please rate by your preference, by ticking [x] the box under the appropriate number. With 1, as strongly encourage factor and 4, strongly discourage.

FACTORS INFLUENCING SKILLS DEVELOPMENT AND IMPROVEMENT IN NIGERIA	IMPORTANT			
	ENCOURAGE		DISCOURAGE	
	1	2	3	4
Obtaining certified qualification				
Obtaining respect of peers				
Promotion /career development				
Willingness to learn				
Religious inclination				
Cultural believes				
Traditional values/ norm				

Thank you very much for participating in this survey. If you would like to have a summary of the findings of this study, please provide your name and contact email below;

Name:

Email:

Please check this box [ ] If you would like to be contacted for an interview in furtherance of this research.



## Appendix G – Main Interview Questions

### Semi-structured Interview Sheet: Training Officers

Estimated Time: 55mins

Name of Company:

Company Address:

Name of Participant:

Date:

Commencement of Interview (Time):

End of Interview (Time):

Total Interview Time:

#### Section A: Characteristics of Company/General Information

1. History of company: Year of establishment, founder, how long the company has been involved in managing construction projects.
2. Company size: a) Number of employees b) what is the average annual turnover of company c) what is the average annual turnover of project works.
3. Market structure: a) Is your company a specialist or general contractor?  
b) What is the % of work on Building construction, Civil engineering and road construction.
4. Ascertain company: a) how is your organization structured (discuss as Appropriate)  
b) What are the local cultures practiced in your host environment and how do they influence the company policies?
5. Company strategy The place of skills and competences development and improvement in the overall corporate strategy of the company: a) Is there any defined policy for the development

of skills and competence of managers and supervisors in particular?

### **Section B: Skills and Competences Training: Current & Future Provisions**

1. From the list about 100 skills and competences in managing construction projects provided, which 5 do you think is most relevant for you as a manager/supervisor and why?
2. Have you received training in any of the 5 skills and competences within the last five years?
3. If yes, was it resourceful?
4. In a construction project organization like yours, who and who should be trained in these 5 skills and competences and why?
5. How can the performance of any this 5 skills and competences, be measured, reviewed, reevaluated?
6. What are the challenges associated with skills and competences development and improvement approaches currently in practice in Nigeria and in your view, how are they different from the practices in Developed countries?
7. Is the current skill and competence structure practiced by your company sufficiently adaptable to new innovations?
8. What skills and competences for managing construction project do you and your organization see as being most need in the next ten years?
9. What do you see as the critical success factors (CSF) to effective skills and competences development and improvement in construction?
10. To what extent does culture, religion, organizational structure or government institutions hinder or encourage trainings and how?
11. What inspires you to participate in skills and competence development and improvement eg. Career development.

### **Section C: Skills and Competences Training Outcome: Current & Future Provisions**

1. What is the current statue of training in Nigeria?
2. Are the targeted skills and competences been developed after training?
3. Is the cost of training within your company's budget?
4. What impact does skills and competences of supervisors and managers have on general project outcome and performance?

5. Are the outcomes of the current training programmes suitable for the next ten years?
6. Do you think skills and competences development in Nigeria needs a framework and guide lines for continues development and improvement?
7. If yes, how best should the framework be designed in order to address all major challenges and remain easy to apply in a developing country like Nigeria?
8. Apart from trainings, what guideline should organizations use to improve the skills and competences of their managers and supervisors?
9. How do you manage and update your skills and competences in absence of organized trainings?
10. Should there be guidelines supported and enforced by government for the development and improvement of skills and competences in Nigeria?

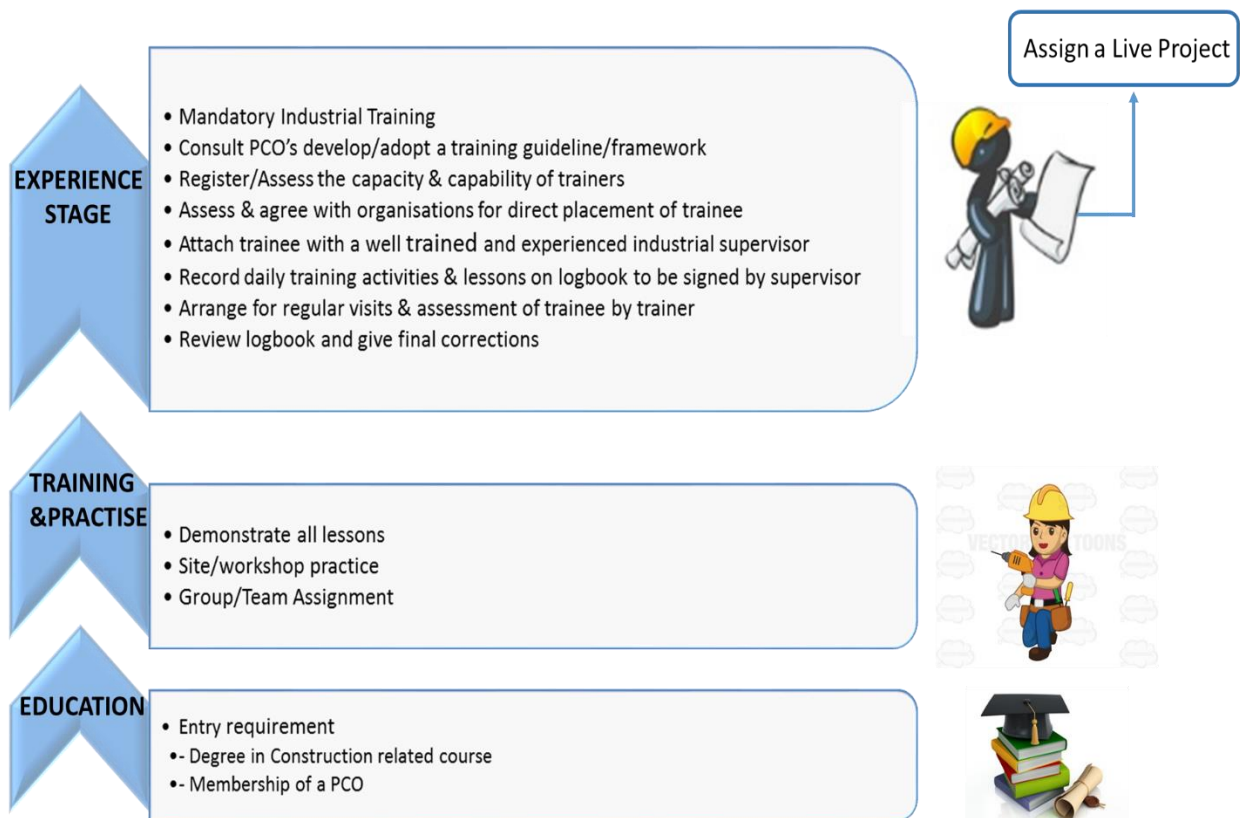
Thank you for participating in this interview, your contribution to this study is greatly appreciated. As part of validation excess of the framework and set of guidelines for development and improvement of skills and competences of managers and supervisors, please will you like to participate in the validation excess of the framework and guidelines and which method would prefer; Questionnaire survey or another interview?

## Appendix H – Draft Framework and Guidelines Before Validation

Stage	Description	Activities	Who is Responsible	Outcome
1. Education	<p>This stage emphasis the focus and importance of education. It deals with ascertaining that the education that helps in preparing the trainee for a career in construction management is acquired. The lessons that the trainee received in the university and schools comes to bear here. Trainee undergoes classroom-like teaching of theories which richly cover; the SCs been trained for.</p>	<p>Identify relevant general education courses that will prepare the trainees mind and develop his understanding of the SC in focused.</p> <p>Identify trainers with requisite and updated in their SC of proficiency to deliver the training.</p> <p>The industry, trainers and professional organisations like NSE should jointly develop curriculum and expected performance outcomes and monitor the quality and outcomes of the trainings.</p>	<p>Trainers, Professional construction organisations like NSE must work together to monitor ensure that each does what is expected of them.</p>	<p>The trainee must have basic graduate general knowledge in the built environment, understand and be able to successfully apply the developed SC in any given work environment.</p>
2. Training	<p>This is the main focus, the goal of this stage is to reshape the thinking, attitude and behaviour of the trainee from unskilled to skilled and then competent.</p>	<ol style="list-style-type: none"> <li>1. Elaborately describe the SC and procedure of applying it.</li> <li>2. break the procedures of application it into smaller simple steps.</li> <li>3. Using real-life examples to demonstrate and illustrate.</li> <li>4. Repeat difficult areas as often as necessary to ensure clear understanding among trainees.</li> <li>5. give opportunities for trainees to discuss in groups to internalize the knowledge.</li> <li>6. give opportunity for comments, questions and</li> </ol>	<p>Trainers or training institutions</p>	<p>The trainee must be able to solve some mental case study. The emphasis should be on ability to adhere to correct procedure in applying any SC.</p>

		feedbacks immediately and give corrections		
3. Practice	Effecting the automatic transformation of knowledge, attitude and behaviour is the aim at this stage of the training. In some cases, activities of practice can run simultaneously with those of the training.	<ol style="list-style-type: none"> <li>1. describe a task and ask the trainee to perform it with the SC taught.</li> <li>2. the task must be in real life scenarios.</li> <li>3. repeat task with more local and realistic pressure, speed, environment.</li> <li>4. observe and obtain feedbacks then make correction where necessary.</li> </ol>	Trainers, and Training Institutions	Trainee should execute assigned task limited or no coaching, just observation. Trainee should be encouraged to independently use his judgement to perform the task. Assessment is based on final outcome of the task performed.
4. Experience	This is an industrial stage; it provides an opportunity for the trainee to perform real-time task on real project learning, developing and improving the SC especially those that can only be learnt onsite working on real work situation.	<ol style="list-style-type: none"> <li>1. assess organisation for industrial training,</li> <li>2. enter a formal training agreement or Memorandum of Understanding with the organisation before training starts.</li> <li>3. directly introduce trainee to organisation, then to his industry supervisor.</li> <li>4. ensure logbooks are used to record daily training activities and must be checked and verified by the industry supervisor.</li> <li>5. trainer must arrange a regular-intervals visits to ensure the trainee is actively engaged in areas of training.</li> <li>6. for trainings lasting longer than three months, arrange for trainee visits to the trainer for</li> </ol>	Trainer, training organisation, professional bodies, trade union, the entire construction industry.	Trainee must be fully engaged in SC of training in a reputable organisation learning and working as a full-time staff under realistic working environment, supervise by an experienced senior officer who is the industry supervisor.

		appraisals and further instructions.		
5. Manage a Project	After successfully completing an industrial training, this stage requires the trainee to manage and lead the execution of a life project. The certification can be issued before or after this stage.	The trainee is allowed to lead the management of a life construction project. s/he might decide to inform and consult the trainer or training institute if need be.	Trainee, trainer	Trainee is allowed to lead a construction management team to express his/her developed or improved SC freely without instruction or observation just consultation if need be.



### 8.2.1 Training and Trainee

1. Training should be conducted with most recent resources, in a supportive environment and there should be opportunity for interactive sessions for focus groups during training and at intervals.
2. Training should be more practical and technical not just theoretical as is the current practice. Valuable certificates, recognizable by the professional construction organizations, academia, government and entire industry should be awarded after successful completion of trainings.
3. When training on budget control, trainees should be made to understand that finances are not only to be controlled but also monitored and properly accounted for, to avoid budget overrun.
4. Cost of training should be subsidized and big corporations should sponsor trainings as part of their corporate social responsibilities. People with special needs like women and disabled workers who are largely discriminated upon in the construction industry should be adequately protected and catered for.
5. Understanding the use of computer applications, software and information technology should be emphasized. Online training should follow this guideline but arrangement should be made for onsite practical, industrial training and group assignments.
6. Different people with different background and ideologies are involved in construction projects, it is important that dialog, negotiation and diplomacy is employed to deal with any conflict or misunderstanding during training and execution of projects.
7. The entrepreneurial side of all SC should be emphasized to promote independent practice and create job opportunities. “Technopreneur” was the word chosen by one respondent to describe using latest and updated technology to train managers and help them create jobs for others through the application technological innovations.
8. Young managers and supervisors should be encouraged to focus on developing SC instead of focusing on monetary gains and profits. They must be made to first and foremost develop the needed interest and passion for the profession, this prepares and reorient their mind and attitude towards better reception of the knowledge.

9. Trainees should be made to understand that training is a continuous process, that knowledge is power and should be updated and shared as necessary.

#### 8.2.2 Trainer

1. The trainers and training institutions and programmes should be improved and equipped for a resourceful, updating and technical trainings.

2. There should be clarity of purpose and responsibility in all agreement entered into for training. And training should be tailored to suit the SC gaps and skills should focus on market demand and needs.

3. While maintaining global best practice, local creativity, talent and contents should be sourced and encouraged. Trainers should sort to identify the core skill strength of the trainee and build on it individually.

4. Trainers should while applying this guideline, study and adopt the code of engineering conduct of NSE and that of other PCO, global best practice and guidelines for training in the industry.

#### 8.2.3 PCO and Organisations

1. Private and public organizations should be compelled to update the knowledge, skills and competences of their workforce as deemed necessary by the activities in industry. They should profile their workforce to identify SC gaps.

2. Organizations should ensure that their trained senior managers, take on the task of training, coaching and mentoring the fresh managers through in-house training and they should ensure trainees practice and implement what they are taught onsite.

3. Private and public organizations should see the need to hire specialist and experts to train their unskilled workers at no hidden cost to the workers, they should diversify roles and responsibilities according to task and insist that roles and responsibilities are assigned based on discipline, area of training and specialization this will enable and enhance productivity.

4. There should be more training and seminar awareness through the PCOs to get intending trainees informed. Government should empower PCOs to jointly monitor the



industry, implement and enforce their code of conducts, ethical standards and possibly, the framework developed through this study.

5. There is need for discussions and Interactions among colleagues and senior professionals in construction management to acquire more knowledge and share experience. More experienced managers should be encouraged through incentives to pass on their knowledge to younger engineers before and after retirement. Technical excursions as currently practiced by NSE branches nationwide, should be encouraged and improved.

6. PCOs should work with government and local authorities to secure project and training sites in a volatile part of the country, sponsor, help enact and enforce all necessary legislations, policies and regulations. All cultural, religious and traditional norms and values of the locality must be taken into consideration at planning and executing of trainings and projects.

7. Government and organizations should work together to approve study or training leave with pay and allowances for any construction manager or supervisor who request to embark on any relevant training. PCOs should compel members not to leave an organization for a minimum of two years after been trained by such organization, especially where the training is sponsored by the said organization.

8. Government through her agencies like COREN and PCOs like NSE, NICE, NIA, NIOB etc. should harmonize and issue license of practice to any individual or organization that intend and is qualified to establish a SC training centers.

9. PCOs should investigate and do more to protect the integrity of the profession and the interest of their members by ensuring that the quality and cost of trainings delivered by trainers are of best possible value, creation and protection of jobs, especially those lost to quacks through unenforced policies and legislations.

Note:

SC: Skills and Competences

PCO: Professional Construction Organizations

COREN: Council for Regulation of Engineering in Nigeria

ARCON: Architects Registration Council of Nigeria

QSRB: Quantity Surveyors Registration Board

NSE: Nigeria Society of Engineers

NICE: Nigeria Institute of Civil Engineers

NIA: Nigeria Institute of Architects

NIOB: Nigeria Institute of Building

NIQS: Nigeria Institute of Quantity Surveyors

## Appendix I – Framework Validation Questionnaire



UREC NO. 1542

### IMPROVING THE SUPERVISORY AND MANAGERIAL SKILLS AND COMPETENCES REQUIRED IN MANAGING CONSTRUCTION PROJECTS IN NIGERIA

#### **QUESTIONS TO VALIDATE TRAINING FRAMEWORK AND GUIDELINES**

1. What is your opinion on this training framework and guidelines?
2. What is important to you and is missing in this framework or guidelines?
3. Do you think the Framework and Guideline can be applied and what can be done to make it more acceptable and applicable in our construction industry?
4. Is there any observation or recommendation you will like to add or remove from the framework or guideline?



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*Government Notice No. 246*

The following is published as Supplement to this *Gazette* :

<i>Act No.</i>	<i>Short Title</i>	<i>Page</i>
19	Industrial Training Fund (Amendment) Act, 2011. .. ..	A 373-380

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INDUSTRIAL TRAINING FUND (AMENDMENT) ACT, 2011



ARRANGEMENT OF SECTIONS

SECTION :

1. Amendment of Cap. 19 LFN, 2004.
2. Amendment of section 1 (c).
3. Substitution for section 2.
4. Amendment of section 4(1).
5. Substitution for section 5 (2).
6. Substitution for section 6.
7. Amendment of section 7.
8. Amendment of section 8.
9. Amendment of section 9.
10. Amendment of section 10.
11. Amendment of section 11.
12. Amendment of section 13.
13. Amendment of section 15.
14. Amendment of section 16.
15. Amendment of Schedule.
16. Citation

**INDUSTRIAL TRAINING FUND (AMENDMENT) ACT, 2011**  
**ACT No. 19**

AN ACT TO AMEND THE INDUSTRIAL TRAINING FUND ACT CAP. 19, LAWS OF THE  
FEDERATION OF NIGERIA, 2004 ; AND FOR RELATED MATTERS.

[3rd Day of June, 2011]

Commence-  
ment.

ENACTED by the National Assembly of the Federal Republic of Nigeria—

1. The Industrial Training Fund Act Cap. 19 Laws of the Federation of Nigeria, 2004 (in this Act referred to as "*the Principal Act*") is amended as set out in this Act.

Amendment  
of Cap. 19  
LFN, 2004.

2. Section 1 (c) of the Principal Act is amended by substituting for the words "*Federal Ministry of Industry*" in line 3, the words "*its parent Ministry*".

Amendment  
of section  
1(c).

3. Substitute for section 2 of the Principal Act a new section "2"—

Substitution  
for section  
2.

**"Utilization of the fund "**

The Fund shall be utilized to—

(a) provide, promote and encourage the acquisition of skills in industry and commerce with a view to generating a pool of indigenous trained manpower sufficient to meet the needs of the private and public sectors of the economy ;

(b) provide training for skills in management for technical and entrepreneurial development in the public and private sectors of the economy ;

(c) set training standards in all sectors of the economy and monitor adherence ; and

(d) evaluate and certify vocational skills acquired by apprentices, craftsmen and technicians in collaboration with relevant organizations."

4. Section 4 (1) of the Principal Act is amended—

Amendment  
of section  
4(1).

(a) in paragraph (e), by substituting for the word "*or*" in line 2, the word "*and*" immediately after the word "*industry*" ; and

(b) in paragraph (f), by substituting for the word "*or*" in line 2, the word "*and*" immediately after the word "*industry*".

5. Section 5 of the Principal Act is amended by substituting for sub-section (2) a new sub-section "(2)"—

Substitution  
for section  
5(2).

"(2) The Council may, from time to time, appoint officers, agents or employees of the Fund to assist the Director-General in the performance of his duties under this Act, who shall be subject to the general control of the Director-General."

Substitution  
for section 6.

**6.** Section 6 of the Principal Act is substituted for a new section “6”—

“(1) Every employer having either 5 or more employees in his establishment, or having less than 5 employees but with a turnover of ₦50m and above per annum, shall, in respect of each calendar year and or the prescribed date, contribute to the Fund one per centum of his total annual payroll.

(2) Any supplier, contractor or consultant bidding or soliciting contracts, businesses, goods and services from any Federal Government Ministry, Department, Agency commercial, industrial and private entity shall fulfill statutory obligations of his employees with respect to payment of training contribution to the Fund.”

(3) Any liable organization, public or private including companies situate in the free trade zone requiring approval for expatriate quota and/or utilizing custom services in matters of export and import, must show proof of compliance with this Act in respect of payment of training contribution of his employees and all regulatory agencies of the Federal Government shall ensure compliance with section 6 (1)-(3) of this Act.

(4) The Ministry may, with the approval of the Federal Executive Council by order published in the *Gazette*, vary the rate of contribution prescribed in subsection (1) of this section”.

Amendment  
of section 7.

**7.** Section 7 of the Principal Act is amended in subsection (1), by substituting for the word—

(a) “sixty” in line 1, the word “fifty” ; and

(b) “adequate” in line 3, the words “in accordance with the Fund’s reimbursement schemes”.

Amendment  
of section 8.

**8.** Section 8 of the Principal Act is amended—

(a) in subsection (1), by substituting for the word :

(i) “levies” in line 1, the word “contributions” ; and

(ii) “Fund” in paragraph (a) line 3, the word “Council” ;

(b) in subsection (2) (a), by substituting for :

(i) the figures “5,000” the figures “500,000.00” ; and

(ii) the figures “10,000” the figures “1,000,000.00” ; and

(c) in subsection 2 (b), by substituting for the figures “1,000” in line 2, the figures “50,000.00”.

Amendment  
of section 9.

**9.** Section 9 (2) of the Principal Act is amended by substituting for subsection (2), a new subsection “(2)”—

“(2) Notwithstanding the provisions of subsection (1) of this section, the Director-General may if he thinks fit, waive in whole or in part any penalty imposed under this section.”

**10.** Section 10 (1) of the Principal Act is amended by substituting for the words “*such fund as Amendment of the Minister may direct*” in lines 2 and 3, the words “*accordance with the relevant laws of the Federal Republic of Nigeria.*” Amendment of section 10.

**11.** Section 11 of the Principal Act is amended by substituting for subsection (2) and (3), new subsections “(2)” and “(3)”— Amendment of section 11.

“(2) Any action for the recovery of contributions under this section may be instituted by the Council, Director-General, agents or officers of the Fund on behalf of the Director-General, and where the action is instituted in a magistrate’s court, any person authorized by this sub-section may appear and conduct the case.

(3) For the purposes of this section “contribution” includes under payment or for late payment, as the case may be.”

**12.** Section 13 of the Principal Act is amended by substituting for—

(a) the marginal note, a new marginal note :

“*Power of the courts to decide in disputes relating to liability*” ; and

(b) the word “*Minister*” in line 2, the word “*court*”.

Amendment of section 13.

**13.** Section 15 of the Principal Act is amended—

(a) in sub-section (1), line 4, by deleting the words “*levy or*” ; and

(b) in sub-section (3) (a), by substituting for the figures :

(i) “5,000”, the figures “500,000” ; and

(ii) “10,000”, the figures “1,000,000” ; and

(c) in sub-section (3) (b), by substituting for the figures “1,000”, the figures “50,000”.

Amendment of section 15.

**14.** Section 16 of the Principal Act is amended by inserting, in the alphabetical order, the definition of— Amendment of section 16.

“*payroll*” means the sum total of all basic pay allowances and other entitlements payable within and outside Nigeria to any employee in an establishment, public or private ;

“*employees*” means all persons whether or not they are Nigerians employed in any establishment in return for salary, wages or other consideration, and whether employed full-time or part-time, and includes temporary employees who work for periods of not less than thirty days ;



“contribution” include underpayment and any interest or penalty payable or for late payment, as the case may be ;

“The prescribed date” means—

(a) in respect of year two thousand and eleven, means a date not later than three months from the date of commencement of this Act ; and

(b) in respect of every subsequent year, means a date not later than 1st April of the following year.”

Amendment  
of Schedule.

15. The Schedule to the Principal Act is amended as set out below—

*Paragraph 1*

The Governing Council shall consist of thirteen members to be appointed by the Minister and shall comprise ;

(a) one representative each from the following Federal Ministries—

(i) Labour and Productivity ;

(ii) National Planning Commission ;

(iii) Budget office of the Federation ;

(iv) one representative of the Nigerian Labour Congress, Trade Union Congress in rotation for one year at a time ;

*Paragraph 2*

The President shall, on the advice of the Minister, appoint the Chairman of the Council.

*Paragraph 3*

The Council shall appoint a Vice-Chairman from its members not being a member representing the same interest as the Chair man.

*Paragraph 9*

Any member appointed under paragraph 1 (d) to (h) of this Schedule shall hold office for two years and may be eligible for reappointment.

*Paragraph 11*

Subject to paragraph 2 of this Schedule, the Council shall meet quarterly or at least twice each year.

*Paragraph 13(2)*

The quorum for any meeting of the Council shall be five representing at least three interest groups.

*Paragraph 14*

A member of the Council shall be paid out of the moneys at the disposal of the Council, such remuneration and allowances in accordance with Financial and Administrative Guidelines of the Federation.

**16.** This Act may be cited as the Industrial Training Fund (Amendment) Act, 2011. Citation.

I certify, in accordance with Section 2 (1) of the Acts Authentication Act, Cap. A2, Laws of the Federation of Nigeria 2004, that this is a true copy of the Bill passed by both Houses of the National Assembly.

SALISU ABUBAKAR MAIKASUWA, mni  
*Clerk to the National Assembly*  
*2nd Day of June, 2011.*

EXPLANATORY MEMORANDUM

This Act amends the Industrial Training Fund Act Cap. 19, Laws of the Federation of Nigeria, 2004.

**SCHEDULE TO INDUSTRIAL TRAINING FUND (AMENDMENT) BILL, 2011**

(1) <i>Short Title of the Bill</i>	(2) <i>Long Title of the Bill</i>	(3) <i>Summary of the Contents of the Bill</i>	(4) <i>Date passed by the Senate</i>	(5) <i>Date Passed by the House of Representatives</i>
Industrial Training Fund (Amendment) Bill, 2011.	An Act to amend the Industrial Training Fund Act Cap. 19, Laws of the Federation of Nigeria, 2004 ; and for related matters.	This Bill seeks to amend the Industrial Training Fund Act Cap. 19, Laws of the Federation of Nigeria, 2004.	1st June, 2011	19th May, 2011

I certify that this Bill has been carefully compared by me with the decision reached by the National Assembly and found by me to be true and correct decision of the Houses and is in accordance with the provisions of the Acts Authentication Act Cap. A2, Laws of the Federation of Nigeria, 2004.

I ASSENT.



SALISU ABUBAKAR MAIKASUWA, mni  
*Clerk to the National Assembly*  
2nd Day of June, 2011.

DR. GOODLUCK EBELE JONATHAN, GCFR  
*President of the Federal Republic of Nigeria*  
3rd Day of June 381, 2011.