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Framework for Competency Development of Building Construction Graduates for Enhancing Employment

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Abstract **-**The steady increase in unemployment among building construction graduates of polytechnics in Nigeria is of concern. Efforts of relevant stakeholders have not been effective in mitigating the problem. This study is aimed at proffering a strategy to addressing this issue. The researchers sought to explore the competencies required by employers in order to develop an integrated competency framework to augment existing training programs, thereby bridging the competency gap between employers and graduates. A survey instrument was used to collect data from a sample of 200 building construction experts. These experts were selected by a proportionate stratified sampling technique. Three experts, one each from academia, the private sector, and the public sector, validated the contents of the instrument. Winstep software version 3.73.3 was used to determine the reliability of the technical and nontechnical competencies sub constructs, and to obtain item strata for development of the competency hierarchy. The findings revealed a four-staged competency hierarchy for enhancing graduates' employability according to the Dreyfus and Dreyfus Novice to experts' theory of competency. The competency levels were divided according to logit obtained from Winstep Analysis. A total of 26 sub constructs met the proposed competency framework. Findings from the study will have significant implications for the government, employers of labour, professionals, skills training centers and graduates.***Keywords:*** Competency Framework, Construction Graduates, Future Employment, Employability skills

Introduction

Globalization and technological progress have complicated the task of developing students' competency, as the future world of work is becoming more complex and unpredictable (Lock & Kelly, 2020). The provision of competency has become a key goal of many Higher Education Institutions (HEIs). Given the growing anxiety on graduate jobs outcomes faced by HEIs, it is not surprising that much of the emphasis today is on whether the efforts of these institutions have proved successful. While there is much discussion on the complexities of transition from institution to labour market and the 'employability competency gap,' how this is tackled in teaching is by far given less attention.

Fraser, Duignan, Stewart, and Rodrigues, (2019) observed that one of the essential aspects of tertiary education is for graduates to gain access to a diverse and global job market. Harrison and Grant, (2016) revealed that such learning outcomes takes into account demands and expectations from industry to

promote the transition to jobs. Building industry relies on higher educational institutions, employers, and private sectors to provide graduates with the required competencies to perform favourably in a diverse work environment to meet the building industry's demand for competent labour.

Competency refers to knowledge, abilities and intimate, social skills relating to work or study demonstrated in a chosen career (Human, Development, & Group, 2017). Competency in the context of this study refers to expertise, abilities, and socio-behavioral characteristics or attitudes exhibited by construction graduates that can improve their professional development and critical job requirements. Competency requires mobilizing information , expertise and behaviors to perform a challenging task (OECD, 2018).

Finch, Hamilton, Baldwin, and Zehner, (2013) Conducted a mixed-method study using sequential exploratory design on factors influencing the competencies of undergraduates. The study results revealed high importance to soft and technical competencies. Therefore, to succeed in the global labour market, building graduates need competencies not only to secure employment in Nigeria, but also a wide range of building competencies. Such competencies are in the areas of technical (hard) and nontechnical (soft).

The Role of Polytechnic in Competency Development

For Nigeria polytechnics to achieve their goals of offering appropriate competencies, the curriculum must serve employers and future employment needs. Corroborating this argument, Ahn, Pearce, Kwon, & Shin, (2009) pointed out that high-quality training aimed at the technical competencies required by the construction industry is important. However, this can only be achieved if a competency framework is developed to strengthen the existing training programme. Pitan (2015) notes that students trained under the existing curriculum cannot develop lifelong learning competencies for successful and efficient work. Favara & Appasamy, (2015) pointed out that due to the training programme, students are ill-prepared and lack the quality and labour market relevance necessary. Nigeria, polytechnics, and technology colleges have the statutory mandate to provide quality technical and vocational education and training (Morgan, 2011). But over the years labour-employers have shown serious concern about the standard of polytechnics construction graduates in Nigeria.

Building has been among the five occupations with high competency shortages in the last 30 years, according to the Nigeria Statistics Office (Report, 2017). Records from the Nigeria Statistics Bureau National Bureau of Statistics, (2018) show that the unemployment rate between 2017 and the third quarter of 2018 is on the progressive rise registering 16.20% to 23.13%. Stakeholders have advocated a full redesign of the learning process if the country wishes to contain the rapid growing challenges of unemployment. Favara and Appasamy's (2015) report indicates that out of this percentages, 45.6 percent of individuals between the ages of 15-25 years were found to be unemployed. The report also revealed that 13.80 percent of the unemployed were from the construction sector of the economy. Eicker, Haseloff, and Lennartz, (2017) observed that attributing factors could be the level of teaching, where only a few lecturers combine pedagogical skills with professional expertise and experience in industry. In light of this, the study aims to bridge the competency gap between construction graduates and labour employers by developing a competency framework. The researchers intend to do this by

developing a competency framework that can enhance their employability requirement. The researchers specifically aim to:

i) identify specific sub constructs of technical and nontechnical skills in building construction.
ii) validate components of technical and nontechnical competency sub constructs in building construction by experts.

Research Questions

The following research question were formulated to meet the stated objectives above:

i) What are the technical and nontechnical competencies sub constructs in construction sector essential to graduates of polytechnic for employment?
ii) What are the elements of technical and nontechnical competency important for development of competency framework?

Building construction graduates; polytechnic and other similar institutions; government, education stakeholders; labour employers, professional body, and researchers may benefit from the results of this research work.

Review of Literature

According to Yusoff et al., (2010), the value of employability competencies in construction sectors is now greater than ever, as companies are now using highly developed equipment, systems and structured processes that require highly qualified graduates with integrated and multi-skilled competencies. In a study conducted by Fraser et al.,(2019) to identify the role of inter-institutional cooperation in research into existing strategies used to integrate competencies that improve employability, a number of frameworks and models were drawn which identified ten core attributes such as positive attitudes, communication, teamwork, self-management, willingness to learn, thinking skills, resilience, creativity, entrepreneurship and cultural skills. Different approaches may be used by highly experienced teachers to develop the ten competencies listed for employment. Similarly, Eicker et al., (2017) examines obstacles and opportunities for incorporating career development learning into higher education curriculum and describes successful approaches at institutional, school, and program levels to do so. The findings proposed approaches in the learning process of curricular career growth for institutional members, scholars, and career practitioners in higher education institutions at various levels.

While many scholars like Bridgstock, (2015); Pool and Sewell, (2007); Knight and Yorke, (2003); Forrier, Verbruggen and Cuyper, (2015) have made efforts to develop a competency framework for employment, none appears to meet the situation in Nigeria as it is within their own curriculum and needs. A study carried out among small and medium-sized construction firms in Nigeria to investigate the shortage of competent craftsmen in the construction industry revealed that there is a gross shortage of competent craftsmen in the industry which require a robust competency framework (Ajagbe, 2015). Corroborating this statement Dantong et al. (2011); Long et al., (2012a): Long et al., (2012b) in Ajagbe, (2015) notes the presence of low quality shortages of competent craftsmen in the construction industry

in Nigeria. Aminu et al., (2018), Suggests that the availability and quality of competent labour is a significant consideration for the success of every building industry.

Although, there are no clear figures to prove numerically the presence of a shortage of competent craftsmen in the construction industry in Nigeria, recorded evidence from the literature and reports from experts and other industry stakeholders indicated that there is a gross shortage of competent tradesmen in the sector. ITF-UNIDO, (2016) In support of these arguments, a study was conducted in response to concerns posed by experts about perceived competency shortages, and suggested that insufficient competent workforce calls for a paradigm shift in competency development strategies in Nigeria. This study also revealed that there is an obvious disparity between the competency graduates have acquired those needed to fulfil employers' needs and expectations in the construction industry. The outcry from the professionals and the inability of the graduates to possess employable competencies to secure employment is obvious that in the higher learning institution there is a missing link in the education system. Agbade (2016) cautioned that the period has passed when the good academic results of the graduate devoid of competence are celebrated. He proposes reforming the curriculum to include elements that will emphasize innovation and ability in producing professional and innovative graduates for employment.

Methodology

The survey design was employed and data obtained using a closed-ended questionnaire validated by building construction experts. The data obtained were analysed using WINSTEP software version 3.72.3 with the aid of IBM SPSS Statistics in line with Rasch measuring model. Rasch checked measures of reliability and validity for both items and person (Linacre, 2013; Suhairom, Musta'amal, Amin, & Johari, 2014). In addition, the Rasch model is capable of providing accurate, technically sound, and reliable knowledge of decision-making in all circumstances to researchers. With the right competencies setting, polytechnic has the ability to provide graduates with realistic mix of practical and theoretical expertise for employers in the construction industry (Treichel, 2010).

The category of documents analyzed to determine technical and nontechnical competency constructs included Journal articles, Conference proceedings, Policy documents, and Reports on building construction. The Documents analyzed were: (Mance, Ed, Switalski, & Reali, 13455BC; Abubakar, Kazaure, Yusuf, 2003; UNIDO, 2018; Sunardi, Purnomo, & Sutadji, 2016; Watson, Noyes, & Rodgers, 2013; International Labour Organization, 2011; Afolabi, Ojelabi, Oyeyipo, Tunji-Olayeni, & Amusan, 2017; Wiseman, Roe, & Parry, 2014; Kaushal, 2016; Blades, Fauth, & Gibb, 2012; Danish Technological Institute, 2009; Thomasson, Cleary, Flynn, & Department of Education Science and Training, 2006; and Zaharim, Yusoff, Omar, & Mohamed, 2009). The documents were labelled as follows; A1-A5 (Journals), B1-B5 (Reports), C1 (Policy), and D1 (Conference papers). From the documents, 16 different constructs were identified while all the documents showed that nontechnical competencies were also essential components for graduates' workplace due to technological advancement where new jobs that require new competencies are coming up. The description of the findings from the review of the documents are shown in Table 1.

		Competency Sub-constructs					**Reports**					**Policy Docu**	**Conference Papers**
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	D1
Building Construction Specific Competencies													
TP	Plumbing		√	√								√	
TT	Tiling		√		√						√	√	
TCJ	Carpentry/Joinery	√		√	√							√	
TBB	Brick/Block Laying	√		√	√						√		
TCC	Concreting			√	√		√					√	
TD	Draw. Interpretations	√	√		√		√				√		
TRF	Roofing	√		√								√	
TSC	Scaffolding	√	√		√						√		
TSP	Site Preparation			√	√							√	
TSO	Setting Out		√		√						√		
TES	Estimation/Scheduling	√		√	√		√					√	
TM	Maintenance/Repairs		√	√							√	√	
TPD	Painting/Decoration		√		√						√	√	
TPL	Plastering	√		√								√	
TIB	Iron Bending		√	√							√	√	
TGK	General Knowledge		√	√							√	√	
Non- Technical (Generic) Competency sub-Constructs													
NTCM	Communication					√	√	√					√
NTC	Composure					√	√			√			√
NTCL	Collaboration			√		√		√			√		√
NTSD	Self-discipline			√					√	√			
NTL	Leadership/Teamwork					√			√	√			
NTP	Problem Solving			√				√	√	√			
NTIR	Interpersonal Relation					√					√		√
NTIN	Innovation									√	√		√
NTS	Safety Issues			√			√			√	√		

NTM	Management	√	√	√

Table 1: Building Construction Competency Sub-Constructs.

Results and Discussion

According to the Rasch measuring model, the constructs of technical and nontechnical competences were subjected to analysis. This was necessary to ensure that these sub constructs of competencies were efficient and successful in developing a framework integrated with the requisite competencies for graduates' employability.

Sub constructs of Technical Competency Items Strata

To achieve the development of a competency framework, the researchers considered the technical competency constructs items as found in Table 1 above. This consists of 16 technical constructs from document analysis with 87 items. The result revealed items reliability and separation .94 and 4.05 respectively. As a result, the Competency strata were generated using the items separation index. Table 2 provides summary of the statistics for 16 components of technical competence for reliability and person separation. Alpha Cronbach 0.98.

Table 2: Winstep Output Table For Technical Components

TOTAL SCORE	COUNT	MODEL MEASURE	INFIT ERROR	INFIT MNSQ	INFIT ZSTD	OUTFIT MNSQ	OUTFIT ZSTD
MEAN 529.8	125.0	.00	.14	1.00	.0	.97	-.2
S.D. 31.1	.1	.61	.02	.17	1.3	.17	1.1
MAX. 600.0	125.0	1.19	.22	1.36	2.7	1.39	2.1
MIN. 462.0	124.0	-1.80	.13	.58	-3.9	.59	-3.0

REAL RMSE .15 TRUE SD .60 SEPARATION 4.05 ITEM RELIABILITY .94
MODEL RMSE .14 TRUE SD .60 SEPARATION 4.21 ITEM RELIABILITY .95

S.E. OF ITEM MEAN = .07

DELETED: 2 ITEM

The formula used to achieve strata of items was: Number of separation between individual and object, H = 4G +1/3 where G is the separation index (Omar, Rodzo'an, Saidfudin, and Basri (2010). Therefore, the item strata for competency levels is [4(4.05+1)] / 3 = 5.7 This means that the instrument can be divided into 5 competency groups. In this vain the 87 items were divided into five in each category, resulting in each having 17 components. In this case, the entire item measure was summed up and then divided by (17) the number of items in each category to get the mean of the items measure

that served as the cut-off point for the competency strata in logit. For the logit values obtained in each group, stratified in descending order based on 'Expert,' 'Competent, Advance Beginner and Novice, see Table 3 below.

Table 3: Values for Items Strata for Technical Components

Group	Item measure (logit)	Items in each group	Mean (logit)	Standard Deviation
Level 5 Expert	TP1 (+.57) up to TCJ6 (+ 1.19)	10		
Level 4 Competent	TBB3(+.21) up to TP1(+.57)	18	**+.00**	**+.61**
Level 3 Proficient	TPD3(-.10) up to TBB5(+.19)	15		
Level 2 Advanced beginner	TES5(-.53) up to TD5 (-.16)	16		
Level 1 Novice	TSO7(-1.80) up to TP4(-.60)	26		
Total		**85**		

In hierarchical order indicated in colours as shown in Table 4 below, the mean logit 'cut-off point' obtained in Table 3 above, the competency strata were obtained. Subsequently, the items in each category were used to establish hierarchy of competence for construction graduates.

Table 4 Items Strata for Technical competency

Items Code	**Sub constructs**	**Logit**	**Cut-off point**	**Mean Logit**	**Standard deviation (SD)**	**Items Levels**
TCJ6	Carpentry / Joinery	1.19				
TSP4	Site preparation	1.01				
TIB1	Iron Bending	1.00				
TSP2	Site preparation	.96				
TCJ4	Carpentry/Joinery	.93	**Expert**			**LEVEL 5**
TT3	Tiling	.92				
TT4	Tiling	.85				
TCJ5	Carpentry/Joinery	.85				
TIB2	Iron Bending	.80				
TIB4	Iron Bending	.80	+.82	.00	.61	

TP3	Plumbing skills	.74				
TSP3	Site preparation	.74				
TT5	Tiling	.65				
TIB3	Iron Bending	.65				
TSP1	Site preparation	.64				
TCJ3	Carpentry/Joinery	.59				
TP1	Plumbing	.57				
TT2	Tiling	.55				
TGK1	General Technical Knowledge	.54	**Proficient**			**LEVEL 4**
TP2	Plumbing	.50				
TGK5	General Technical Knowledge	.49				
TCJ2	Carpentry/Joinery	.40				
TCJ1	Carpentry/Joinery	.38				
TPL2	Plastering	.38				
TSC2	Scaffolding	.38				
TSC3	Carpentry/Joinery	.38				
TP5	Plumbing	.35				
TSC4	Scaffolding	.35	+.36	.00	.61	
TRF5	Roofing	.30				
TSC5	Scaffolding	.23				
TM2	Maintenance	.23				
TGK4	General Technical knowledge	.23				
TT1	Tiling	.21				
TBB3	Block/Brick Laying	.21	**Competent**			**LEVEL 3**
TBB5	Block/Brick Laying	.19				
TPD5	Painting/Decoration	.18				
TGK3	General Technical Knowledge	.16				
TBB4	Block/Brick laying	.14				
TSC1	Scaffolding	.09				
TPL5	Plastering	.07				
TD2	Drawing interpretation	.07				
TCC3	Concreting	.05				
TM3	Maintenance	.03	+.04	.00	.61	
TPL4	Plastering	.01				
TPD4	Painting/Decoration	-.01				

TPL1	Plastering	-.03				
TPL3	Plastering	-.03				
TCC4	Concreting	-.04				
TES6	Estimation/Scheduling	-.04				
TGK6	General Technical Knowledge	-.06	**Advance Beginner**			**LEVEL 2**
TPD3	Painting/Decoration	-.10				
TD5	Drawing interpretation	-.16				
TRF3	Roofing	-.16				
TGK2	General Technical Knowledge	-.16				
TM4	Maintenance	-.18				
TM5	Maintenance	-.20				
TSO2	Setting out	-.22				
TRF7	Roofing	-.24				
TM1	Maintenance	-.30	-.31	.00	.61	
TBB1	Block/Brick laying	-.32				
TSO4	Setting out	-.32				
TCC2	Concreting	-.34				
TBB2	Block/Brick laying	-.36				
TRF6	Roofing	-.38				
TSO5	Setting out	-.40				
TRF2	Roofing	-.47				
TD3	Drawing interpretation	-.49				
TES5	Estimation/Scheduling	-.53				
TP4	Plumbing	-.60				
TPD2	Painting/Decoration	-.60				
TES3	Estimation/Scheduling	-.65				
TSP5	Site preparation	-.67				
TSO1	Setting out	-.67				
TM6	Maintenance	-.70				**LEVEL 1**
TES7	Estimation/Scheduling	-.77	**Novice**			
TRF1	Roofing	-.80				
TPD1	Painting/Decoration	-.80				
TD4	Drawing Interpretation	-.87				
TES4	Estimation/Scheduling	-.87				
TCC1	Concreting	-.90				
TSO3	Setting out	-.93				

TES2	Estimation/Scheduling	-1.13			
TES1	Estimation/Scheduling	-1.19			
TSO6	Setting out	-1.48			
TSO7	Setting out	-1.80	-4.80	.00	.61

Competency hierarchy was therefore developed by summarizing these items according to their position in items strata. Figure 1 below show the hierarchy structure of the levels of competency for technical competence.

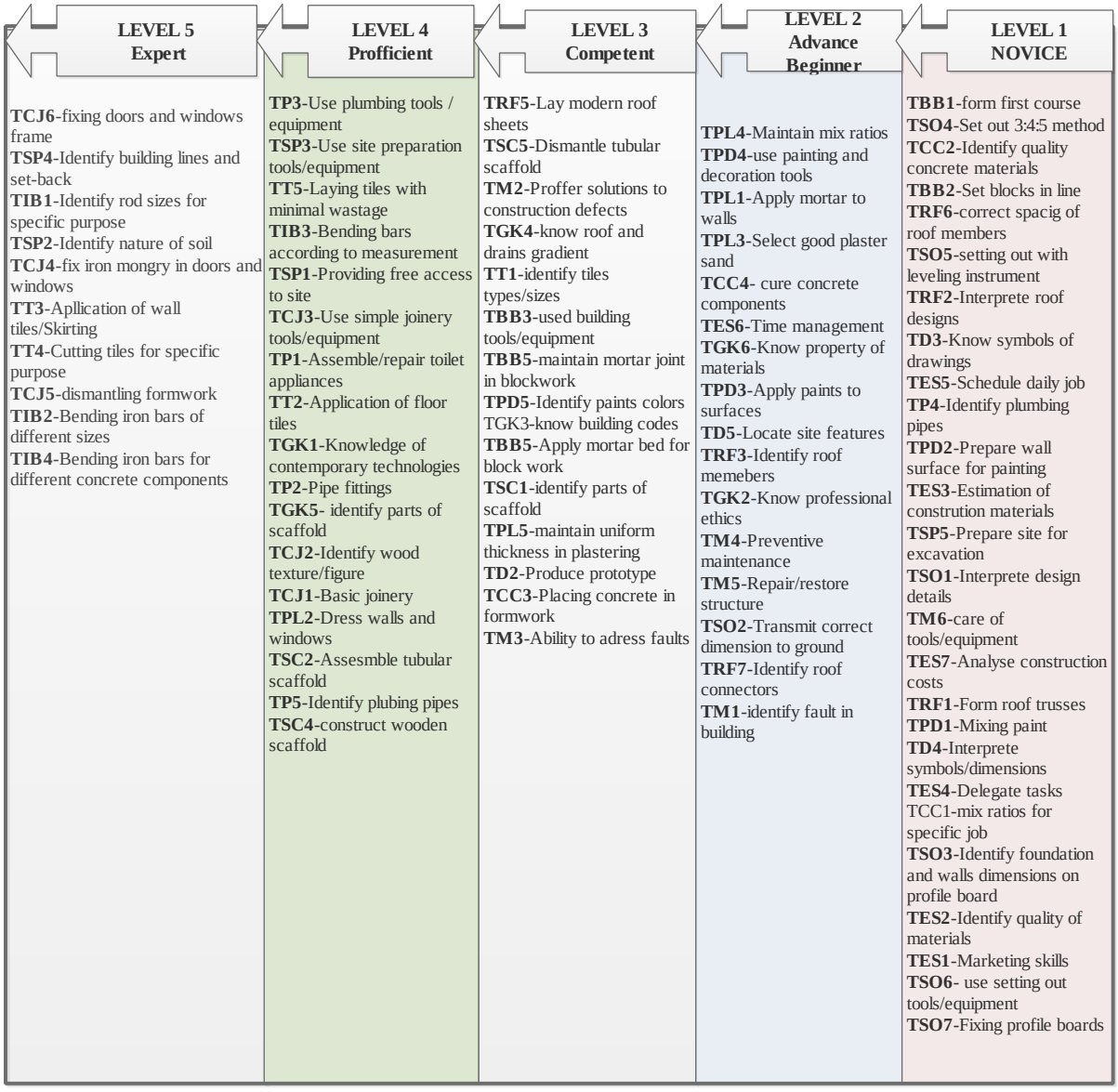

Figure 1 Technical Competency Hierarchy

Nontechnical Competency Hierarchy

Experts tested a total of 10 sub constructs with 63 associated components. The complete 63 items indicate 2.04 separation; 0.81 Cronbach Alpha reliability was 0.9. items strata were determined to assess the degree of competence for the 63 products in total. See below, in Table 5.

Table 5 Winstep Output Table for Nontechnical Components.

```
-------------------------------------------------------------------------------
|       TOTAL                  MODEL       INFIT      OUTFIT    |
|      SCORE    COUNT    MEASURE  ERROR     MNSQ   ZSTD   MNSQ   ZSTD |
|-------------------------------------------------------------------------------|
| MEAN    463.2    108.0      .00    .16     1.01    .0    .98    -.1 |
| S.D.     15.2      .0      .37    .01      .16    1.1    .16     .9 |
| MAX.    493.0    108.0      .81    .18     1.44    2.7   1.47    2.1 |
| MIN.    427.0    108.0     -.80    .14      .74   -1.9    .68   -2.0 |
|-------------------------------------------------------------------------------|
| REAL RMSE   .16 TRUE SD    .33 SEPARATION 2.04 ITEM   RELIABILITY .81    |
|MODEL RMSE   .16 TRUE SD    .33 SEPARATION 2.13 ITEM   RELIABILITY .82
|
| S.E. OF ITEM MEAN = .05                                                |
-------------------------------------------------------------------------------
                        DELETED:      6 ITEM
```

The formula applied was Item separation, H = 4G+1/3 where G is the separation Index (Omar et al., 2010).

The item grouping was calculated thus; H= [4(2.11+1)/3 = 4.15 this implied that the entire item was grouped into 4 competency levels. Furthermore, the entire 63 items were divided into 4 to determine the grouping. Afterwards, the item measure logit values in each group added up and divided by number of items in each group to obtain the cut-off point for the item strata. The result of the analysis obtained in the items competency strata was used to construct competency hierarchy. Findings from the analysis grouped the items into 4 levels of competencies. Table 6 present the summary results of the values obtained in this process.

Table 6 Values for Items for Non-Technical Components

Group	Item measure (logit)	Items in each group	Mean (logit)	Standard Deviation
Level 4 Competent	NTIR4(+.50) up to NTCM 4(+.81)	8	**+.00**	**+.37**
Level 3 Proficient	NTIN6(+.12) up to NTSD3(+.39)	17		

Level 2 Advanced Beginner Level1 Novice	NTM7(-.10) up to NTPS6(+.10) NTST7(-.80) up to NTCM1(-.12)	16 22
Total		**63**

The competency division in indicated in colours in Figure 2 below was obtained by using the cut-off logit of item measure from Table 6 above.

Table 7 Items Strata for Non-Technical Components

Items Code	Sub constructs	Logit	Cut-off point	Mean Logit	Standard deviation (SD)	Item Levels
NTCM4	Communication skills	.81				
NTIR2	Interpersonal Relations	.81				
NTPS8	Problem Solving	.71				**LEVEL 4**
NTCM5	Communication	.62		**Proficient**		
NTIR3	Interpersonal Relations	.58				
NTCM3	Communication	.52				
NTL3	Teamwork/Leadership	.52				
NTIR4	Interpersonal Relations	.50	.45	.00	.37	
NTSD3	Self-discipline	.39.				
NTIN2	Innovation	.39				
NTIR1	Interpersonal Relations	.26				
NTSD2	Self-discipline	.23				
NTL5	Teamwork/Leadership	.23				
NTPS7	Problem Solving	.23				
NTL2	Teamwork/Leadership	.21				
NTL4	Teamwork/Leadership	.19				**LEVEL 3**
NTIN1	Innovation	.19		**Competent**		
NTST3	Safety Issues	.19				
NTIN3	Innovation	.17				
NTST2	Safety Issues	.17				
NTPS5	Problem Solving	.14				
NTIN4	Innovation	.14				

NTPS4	Problem solving	.12					
NTIR5	Interpersonal relations	.12					
NTIN6	Innovation	.12	.11	.00	.37		
NTPS6	Problem Solving	.10					
NTCP3	Composure	.07					
NTIR6	Interpersonal Relation	.07					
NTM8	Site management	.07					
NTCP4	Composure	.05					
NTIN5	Innovation	.05					
NTST1	Safety Issues	.05					
NTST5	Safety Issues	.05					
NTCL4	Collaboration	.02					
NTM9	Site management	.00					
NTCL5	Collaboration	-.02		Advance Beginner			**LEVEL 2**
NTPS3	Problem solving	-.02					
NTIR7	Interpersonal relations	-.02					
NTL1	Teamwork/Leadership	-.07					
NTM5	Site management	-.07					
NTM7	Site management	-.10	-.10	.00	.37		
NTCM1	Communication	-.12					
NTSD4	Self-discipline	-.12					
NTM3	Site management	-.15					
NTPS1	Problem Solving	-.25					
NTST4	Safety Issues	-.25					
NTST10	Safety Issues	-.25					
NTCM2	Communication	-.28					
NTST6	Safety Issues	-.28					
NTM4	Site Management	-.28					
NTCL1	Collaboration	-.30		NOVICE			**LEVEL1**
NTCP2	Composure	-.33					
NTPS2	Problem Solving	-.38					
NTCP6	Composure	-.44					
NTSD1	Self-discipline	-.44					
NTST9	Safety Issues	-.44					
NTCL3	Collaboration	-.49					
NTM6	Site management	-.52					
NTCP5	Composure	-.55					
NTIN7	Innovation	-.61					
NTCL2	Collaboration	-.70					
NTST8	Safety Issues	-.80					

NTST7	Safety Issues	-.80	-.46	.00	.37

Findings from the analysis in Figure 3 above grouped the items into four levels of competencies. Level 1 consists of 22 items. Similarly, total of 16 items constituted the contents of Level 2 competency, in the same vain Level 3 competency consisted of 17 items, and 8 items in level 4. Competency hierarchy was therefore constructed by summarizing these items according to their logit in item strata. Figure 4 show the hierarchy structure of the levels of competency for nontechnical competency.

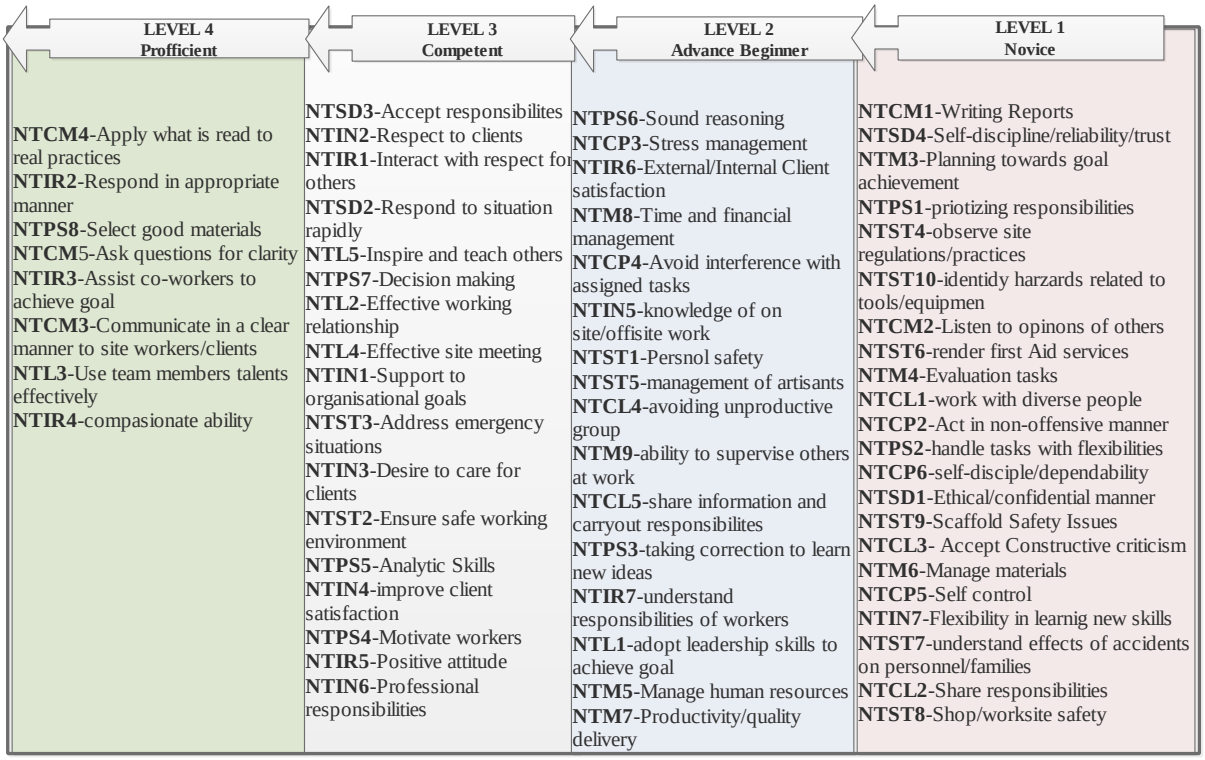

Figure 2 Nontechnical Competency Hierarchy.

Proposed Competency Framework for Building Construction Graduates

It is highly important that this guiding framework was established with the input of many organizations, including industry. While Oluyomibo and Pitan (2016) attemps to establishes a commonly used employability system, it was inappropriate to apply to the construction sector because it is too broad in context and content. Similarly, literature has suggested that most management-focused competencies structure has been developed, but scanty study is recorded on competency models that relate to specific building construction. Hence, the need for this research to be undertaken. Augmenting this proposal Favara and Appasamy, (2015) noted that competence and efficiency would decide the 40 million jobs that Nigeria projected to generate between 2010 and 2030. Therefore, millions of people will be out of poverty and push million of the country's graduates towards empowerment in the near future. Nonetheless, in their research, Pang, Wong, and Coombes, (2019) stated that technical or hard skills and soft skills are important components of the competency system

for graduate jobs. Given this proposal, in order to meet this vision, the desire for a competency framework cannot be overemphasised, as a result of the increasing population, technical and vocational competencies for building construction work are also in high demand in the future because of the housing needs.

The framework represents a full and detailed output of a systematic process that included looking for relevant document, field experts gave their feedbacks on current practices. A series of testing of the contents was undertaken to ensure external validity of the competency framework.

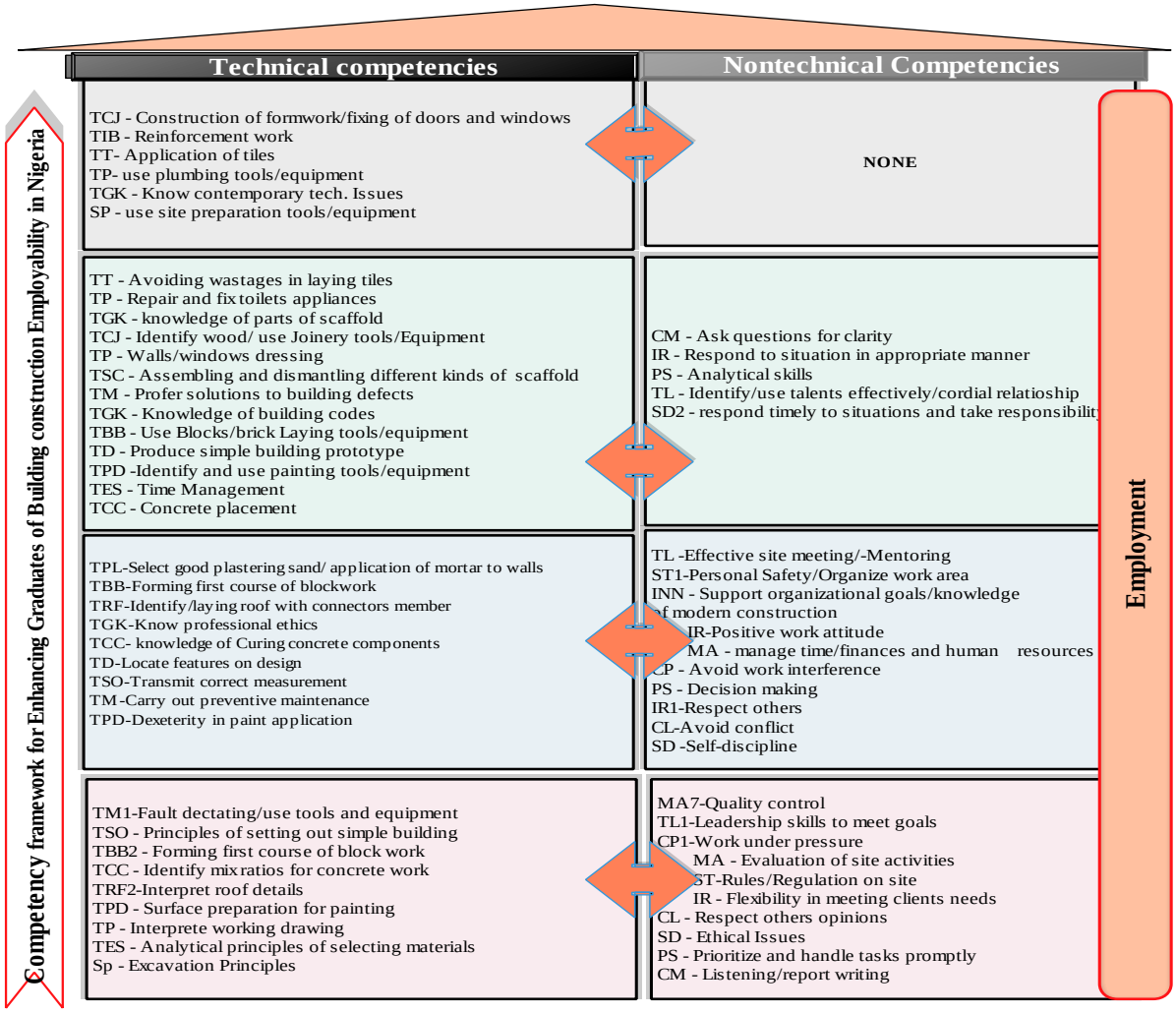

Figure 3 Competency framework for enhancing employability of building construction Graduates of building construction of polytechnics in Nigeri

Conclusions

The proposals in this framework were based on literature findings and quantitative surveys performed in the course of the study; and were organized around the goals and objectives of the research. To alleviate the unbridled debilitating pains of graduates because of lack of livelihood resources, a competency framework has been established that will help improve existing training programs. The framework was integrated with sub constructs of technical and nontechnical competencies that would boost the employability of the graduates in line with the experts' suggestions. A systematic and meticulous analysis processes and methods were followed to ensure comprehensibility and validity of the framework. Unless immediate steps are taken, building graduates will always be at the receiving end of the increasing unemployment problem in Nigeria.

Recommendations

This integrated competency framework is the product of intensive literature search and document analysis, therefore, the findings are recommended to key stakeholders in the construction sector as follows: Private sectors, in building construction industry in Nigeria, would find the framework important and useful in identifying the contributions they can make towards improving the quality of graduates' competencies. Adoption and implementation of the findings advanced in this proposal will go a long way in addressing competency gap between graduates and the employers. The public sector would find the study useful for creating awareness campaign to the mass unemployed youths about the competencies that the employer of labour requires. The findings would encourage the graduates to be self-determine to go extra mile to learn the skills elsewhere during holidays. This framework serves as a driving force for paradigm shift in the method of delivery of instructions in our institution of learning. Government at all levels could recommend this proposal to be adopted by institutions responsible for training students in competencies as evaluation document for certification. The framework is recommended to policy makers especially the National Board for Technical Education (NBTE) to see the need to review and enrich the existing curriculum with specific technical and nontechnical competency sub construct elements.

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