The Impact of Generic Skills on Building Technology Graduates' Employability

Gimba Dogara, Mohammad Sukri Bin Saud, Yusri Bin Kamin, Bakare Shola Francis

Abstract*: Stressing the generic skills among learners is an essential component of producing graduates who would be employable and highly competitive in the world of work situations. This study empirically examined the influence of soft skill elements on building technology graduates' employability at technical colleges in Nigeria. The study tested six hypotheses on soft skill elements influencing building technology graduates' employability. Data were collected through personal-administered questionnaire from 314 building technology teachers at technical colleges in the north-western States of Nigeria. The instrument was embraced from an earlier study and distributed to Building technology teachers at technical colleges in North West, Nigeria. The results revealed through Partial Least Square (PLS) analysis that ICT skills, and resource management skills have a significant positive relationship with building technology graduates' employability while personal skills and problem-solving skills have a positive but insignificant relationship with building technology graduates' employability at technical colleges in Nigeria. It is recommended that teachers or academicians should come out with more interactive ways to develop soft skills among students at every stage to make them become more employable hence, avert them from being unemployed in the future.

***Index Terms*: Generic Skills, Building Technology, confirmatory factor analysis, Structural Equation Modelling.**

I. INTRODUCTION

The problem of graduates' employability has become a worrisome issue in numerous countries, Nigeria inclusive. Hence, improving the graduates' employability is attracting ample attention from the labour market and various institutions of learning across the globe [1]. Technical Vocational Education and Training (TVET) is saddled with the responsibility of imparting knowledge and skills to produce graduates through its institutions for the world of work in order to increase opportunities for productive work, sustainable livelihood, personal empowerment and socio-economic development of a nation [2]. One of the objectives of building technology in Nigerian technical colleges is to give training and impart the necessary skills to individuals who shall be employable or self-reliant economically [3]. The biggest challenge facing technical colleges as TVET institutions of learning in Nigeria is to produce work-ready graduates by developing employable skills and make indigenous graduates more attractive to employers. It has been established that graduates' possession of only technical content knowledge and skills in their profession is now insufficient for them to secure employment and prosper in the workplace, hence a graduate most, in addition, possess generic (soft) skills [4]; [5]; [6]. As a result of non-possession of generic skills, employers, therefore, are currently facing challenges with graduates' employability skills such as problem-solving skills, teamwork, IT skills, communications, among others [7], [8], [9], [10]. Playfoot and Hall, [11]; Farooq, [12]; Nel & Neale-Shutte, [13]; in their different findings reported that the excessive rate of unemployment amongst graduates is ascribed to the inadequate preparation of graduates as a result of mismatch between the skills acquired by graduates and the skills required in the 21st century multifarious work environment. Building technology is one of the programs offered in all the technical colleges in Nigeria, leading to the award of National Technical Certificate (NTC) and Advanced National Technical Certificate (ANTC), [14]. Usually, building technology program is dedicated to preparing students with knowledge and competencies specifically in the discipline in order to prepare them for the world of work [15]. Consequently, current changes due to globalization and modification from industrial and technologically based economy to a knowledge-based economy, there has been a change in the employers' demands in terms of the skills required in the 21st-century workplace. Evidence from previous studies revealed that employers are now more interested in graduates that possessed generic (soft) skills in addition to the technical content knowledge and skills that schools commonly offer to students [16]; [17]. Esa, Selamat, Padil and Jamaluddin (2014) in their findings agreed with the above, that currently, employers are interested in employees who are robust in technical skills as well as generic (soft) skills in order to enhance productivity and capacity for efficiency. Moreover, Canada, [18] and Akanmu, [8] testified in their separate findings that employment of new graduates currently has been centered on the possession of aptitudes in both technical and generic skills (non-technical skills). Employers are now placing emphasis on graduates' level of generic skills rather than in the past while choosing suitable applicants from a large group of graduates [19].

Revised Manuscript Received on September 25, 2019.

Gimba Dogara, Lecturer, Department of Technical Education, Kaduna State College of Education, Gidan Waya, Kafanchan. ggimbadogara@gmail.com

Sukri Mohammad Bin Saud, Professor, Department of Technical and Engineering Education, Faculty of Education, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, MALAYSIA. P-sukri@utm.my

Yusri bin Kamin, Associate Professor, Department of Technical and Engineering Education, Faculty of Education, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, MALAYSIA. P-yusri@utm.my

Bakare Shola Francis is a Lecturer at the Department of Vocational and Technical Education, Faculty of Education, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria. shola.bakare@aaua.edu.ng

Imparting building technology students with generic skills at technical colleges will lead to the production of dynamic and well-informed employees in addition to enhancing their chances of being employed [20]. Hence, teachers of technical colleges should equip their graduates with not only technical content knowledge and skills, but also generic employability skills which are progressively becoming critical in preparing graduates for occupation and work development [18]. Technical colleges are therefore challenged to responding to the fast-changing skills requirements of the economy by imparting the desired skills to potential graduates as numerous students graduate without acquiring the skills required to succeed in the workstation (Naanda, [18].

Technical colleges are among the TVET institutions of learning in Nigerian that is criticized for placing miniature or no efforts towards generic skills improvement, consequently, they are unable to produce effective and efficient graduates [21]. John & Donna [22], Nair et al., [23]) and David et al., [24], in their separate findings concurred that technical colleges stressed more on technical skills and undervalue the significance of generic (soft) skills. Some researchers put the blame on the current curriculum contents which laid ample weight on technical content knowledge at the disadvantage of generic skills [25]. This is in agreement with the findings by Oresanya, Omodewu, Kolade, and Fashedemi [26] that generic skills have not yet been incorporated into building technology curricula in Nigeria. On the other hand, some researchers are accusing building technology teachers of implementing teacher-centered methods of teaching instead of learner-centered teaching and learning methods [27]; [28]; and [29]. Employers are not satisfied with the level of preparation of the graduates' nontechnical skills that are necessary for solving problems and promoting occupational success in spite of the fact that some graduates possessed a significant understanding of the technical content knowledge and skills in their disciplines; hence, technical colleges are blamed for not producing the graduates into the workforce market as required [21].

Consequently, employers keep emphasizing that numerous technical colleges' graduates lack the skills necessary to effectively contribute to the success of their organizations without additional training organized to enhance their efficiency; hence, calls from employers and various researchers on institutions to produce more employable graduates [30]. Therefore, these calls require education which is one of the critical keys to the country's success in the modern knowledge economy to be reorganized. Incidentally, generic skills have the critical implements that can engender the potentials of graduates to the fullest toward an individual or organizational success. Moreover, Building Technology formed one of the vital aspects of the construction industry that highly contribute to the economic and technological development of any nation. To maximize these benefits, potential graduates of building technology should be adequately imparted with the required skills. Hence, the purpose of this study to determine the impact of generic skills on building technology graduates' employability at technical colleges in north western States, Nigeria. Also, to examine the structural relationship among generic skills elements of the hypothesized model.

II. METHODOLOGY

The population for this study comprised of Building Technology Trades teachers at the technical colleges in the North-Western States of Nigeria. Based on the wide range of recommendations regarding the appropriate sample size in factor analysis which are typically stated in terms of the minimum sample size ranges from 100 to over 1000 and the minimum or maximum ratio of the sample size which ranges from 3 to 20 times the number of variables [31]. The researchers here adopted 214; above the minimum sample size required for structural equation modelling [32].

The Survey questionnaires were randomly distributed by the researchers and retrieved from the respective respondents after one week with the help of a research assistant. The scale items used to measure the latent constructs of the model were adapted from the scale items from the earlier validated study by [33] and [29]. A 5-point Likert scale (from 1: strongly disagree to 5: strongly agree) was adopted. Before conducting the final survey a pre-test was conducted to modify the questionnaire and its wording.

Structural Equation Modelling (SEM) is a second-generation multivariable statistical analysis measure that clusters the idea of factor analysis and multi regression analysis [34], hence it was used for finding out the appropriate factors by the exploratory and confirmatory factor analysis method. Statistical Package for Social Sciences (SPSS) version 2 and the SMART Partial Least Square (PLS) version 3 were used for data analysis.

III. DATA ANALYSIS

Prior to SEM procedure, it is imperative to evaluate the measures of the constructs, particularly the one-dimensionality of the scale - if the items congregate to a distinct construct [35]. The study obtained and utilized the results of exploratory factor analysis (EFA) of the independent variables: problem-solving skills, teamwork skills, communication skills, personal skills, initiative skills, information and communication technology skills, and resource management skills and building technology graduates' employability (the dependent variable). The 38 items were subjected to a principal component analysis (EFA) with varimax normalized rotation. Consequently, each of the 38 items had factor loading value above 0.5 therefore, they are considered good and statistically significant. Hair et al., [34] characterized these loadings by means of another rule of thumb as ±0.30=minimal, ±0.40=important, and ±.50=practically significant. Moreover, validity of the data and sampling consistency using Kaiser-Meyer-Olkin (KMO) and Bartlett's test further shows the value of KMO to be 0.786 which exceed the recommended KMO value of > 0.5 and Bartlett's test (Chi=10260.868, $p < 0.05$), and thus were suitable to proceed with an adequate factor analysis [32]. Besides, only constructs that achieved eigenvalues greater than one were considered as significant.

IV. MEASUREMENT MODEL

The measurement model of soft skills elements on building technology graduates' employability was defined by seven individual factors: problem-solving skills, teamwork skills, communication skills, personal skills, initiative skills, information and communication technology skills, and resource management skills. The Factors were measured with thirty-eight (35) items. In the process of validating the model, item TWS5 was dropped from teamwork skills factor, items CMS1, CMS2, and CMS3 were dropped from communication skills factor, items INS1 and INS2 were dropped from initiative skills factor while RMS1 was dropped from resource management skills factor of the model. Fort the items that were dropped, it was not because they had low loading but they were dropped in order to achieve the composite reliability and average variance extracted. As shown in Figure 5.

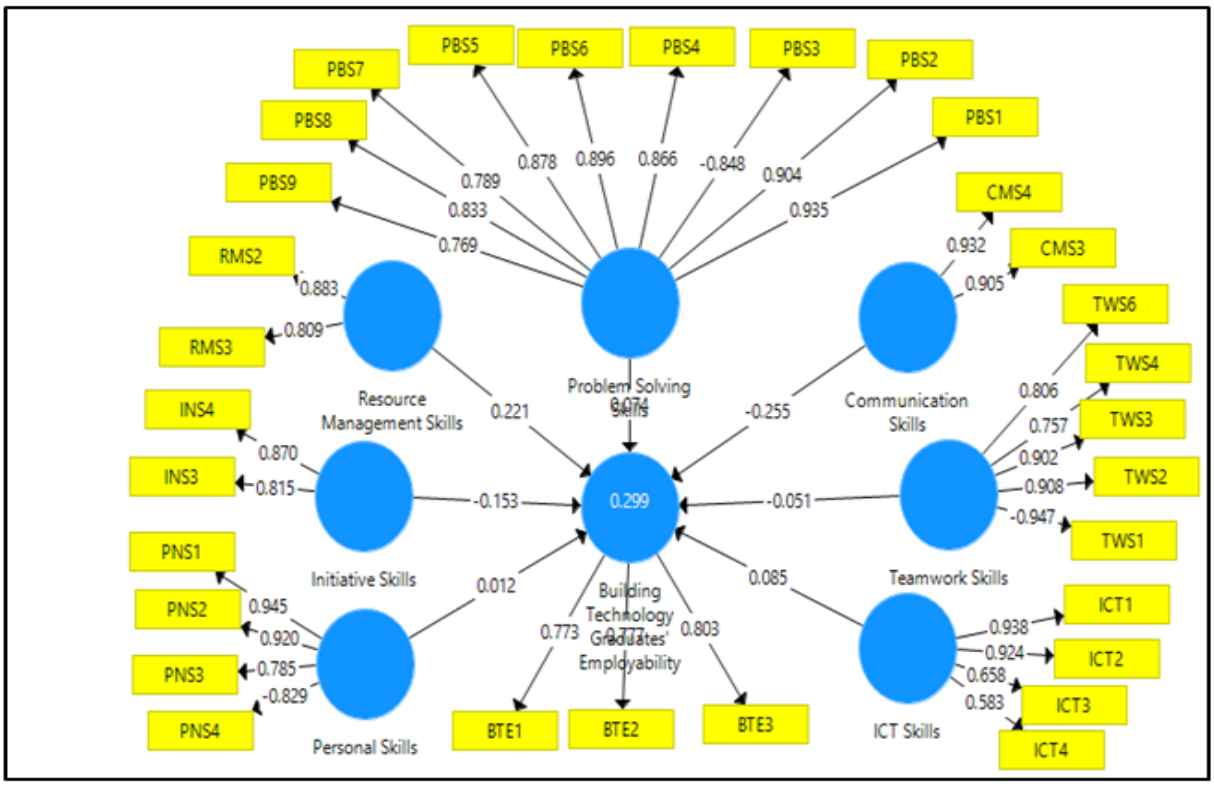

Figure 5: Measurement Model of Generic Skills on Building Technology Graduates' Employability

Composite Reliability

The generic skills reflective measurement model's Composite reliability (internal consistency) on building technology graduates' employability was computed as seen in Figure 5 and Table 2, the acceptable range for this statistics is usually from 0 to 1, moreover, values greater than 0.6 are considered suitable in exploratory studies [34]; in more innovative phases of research, values between 0.7 and 0.9 can be considered as satisfactory [36]. While analysing the composite reliability, the model had thirty-one (31) items made out of seven (7) Factors; problem-solving skills, teamwork skills, communication skills, personal skills, initiative skills, information and communication technology skills, and resource management skills. Nevertheless, the measurement model has suitable internal consistency reliability with values ranging from 0.776 to 0.939 which exceeds the threshold value of 0.6. This measure is chosen over Cronbach's alpha because it provides a better estimate of variance shared by the respective indicators and also uses the item loadings found within the homological network [34]. Therefore, the outcome indicates that the items representing the constructs have satisfactory internal consistency reliability. This is presented in Table 2.

Convergent Validity

Convergent validity is accepted when two theoretical measures of the same construct are positively correlated [37]. The convergent validity of the scale items was considered. It was measured by the use of the Average Variance Extracted (AVE) statistics. The recommended cut-off point of Average Variance Extracted (AVE) for each construct should be above 0.50 [38]. Based on this requirement, the formulation of a latent variable should explain at least 50% of the variance in each of its indicators [34]. Thus, the AVE which is the mean of the square loading values of all the indicators related with a certain latent construct should be greater than 0.50 for a latent variable to have convergent validity. Consequently, all the AVE of the soft skills constructs on building technology graduates' employability were > 0.5 ranging from 0.615 to 0. 844 as indicated in Table 2. This, therefore, indicates that convergent validity is achieved.

Table 2: Reliability and validity of generic skills constructs on building technology graduates' employability.

graduates' employability.

	Composite Reliability	Average Variance Extracted (AVE)
Communication Skills	0.915	0.844
Graduates' Employability	0.828	0.615
ICT Skills	0.866	0.627
Initiative Skills	0.831	0.711
Personal Skills	0.776	0.761
Problem Solving Skills	0.939	0.738
Resource Management Skills	0.835	0.717
Teamwork Skills	0.826	0.751

Discriminant Validity

Discriminant validity reveals the level to which the measure is exceptional and not simply a replication of other variables. Usually, this occurs when two measurement scales evidently measuring different constructs that share a low correlation. The discriminant validity assessment is designed to confirm that a reflective construct has the optimum relationships with its own indicators, for instance, when compared with any other construct in the PLS path model [34]. However, the current study adopts the use of Heterotrit-Monotrait ratio of correlation (HTMT) as suggested by Henseler et al., [39] to assess the discriminant validity of the generic skills constructs on building technology graduates' employability. In this study, HTMT is used as a criterion to assess the discriminant validity. If the value of the HTMT is higher than the threshold of 0.90, one can conclude that there is a lack of discriminant validity [39]. Table 3 shows the discriminant validity of generic skills constructs on building technology graduates' employability with HTMT value < 0.90 accepted as having a discriminant validity. In the meantime, authors have opined that HTMT 0.90 has higher specificity than HTMT 0.85 when the sample size is larger than 100. Hence, the sample size for the current study is far more than 100, consequently, the values of < 0.90 as having discriminant validity in this study is, therefore, established.

Table 3: Discriminant validity of generic skills constructs on building technology graduates' employability

	Communication skills	Graduates' Employability	ICT skills	Initiative Skills	Personal Skills	Problem Solving Skills	Resource Management Skills	Teamwork Skills
Communication skills								
Graduates' Employability	0.592							
ICT skills	0.145	0.170						
Initiative Skills	0.548	0.543	0.100					
Personal Skills	0.254	0.185	0.140	0.227				
Problem Solving Skills	0.068	0.164	0.090	0.097	0.123			
Resource Management Skills	0.781	0.681	0.160	0.741	0.294	0.136		
Teamwork Skills	0.083	0.132	0.070	0.069	0.270	0.206	0.151	

Structural Model Assessment

Next step is the assessment of the inner model (structural model) for examining the hypothesized relationships between constructs in the building technology graduates' employability Model. Initially, the weights or path coefficients of the relationships are considered and verified to determine their significance through t-values found from the bootstrapping method. Similarly, the coefficient of determination (R^2) which measure the model's predictive accuracy was found to be 0.299 for the independent variable. Cohen [40] suggested R^2 values of 0.26, 0.13 and 0.02 as substantial, moderate, and weak respectively for endogenous latent variables. Therefore, this model's predictive accuracy is found to be substantial.

In addition, effect size (f^2) was determined in order to find out whether each specific independent latent construct and dependent latent construct have a practical impact [40]. For the interpretation of the impact of f^2 at the structural level, Cohen suggested that the effect size is large when f^2 is 0.35, medium when f^2 is 0.15, and small when f^2 is 0.03. As shown in Table 3 from the SEM calculations, the effect size for communication skills and resource management skills have a small effect on building technology graduates' employability.

The analysis of the significance of the regression weights was done by running 5000 bootstrapped samples from the 214 cases.

Hypotheses testing

In order to determine the hypothesized relationship between the exogenous variable (graduates' generic skills) and the endogenous variable (building technology graduates' employability), structural equation modeling was employed using Smart-PLS3 (SEM-PLS3). Byrne, Flood, & Willis (2004) suggested the standard decision rule for a relationship between constructs to be significant as: (t-value ≥ 1.96 and p-value is ≤ 0.05). This was used here to determine the significance of the path coefficient between independent variables and dependent variable. The result of the path analysis (Table 4) shows that ICT skills and resource management skills have a significant direct positive relationship with building technology graduates' employability. The relationship is positive with path coefficients (β = 0.085, t ≥ ± 1.96), (B= 0.221, t=1.96) respectively. Communication skills and initiative skills both have a significant direct negative relationship with building technology graduates' employability. The relationship is negative with path coefficients (β = -0.255, t ≥ ± 1.96), (β = -0.153, t ≥ ± 1.96) respectively. However, personal skills and problem-solving skills both have a direct insignificant positive relationship with building technology graduates' employability. The relationship is insignificantly positive with path coefficients (β = 0.012, t ≥ ± 1.96) and (β = 0.074, t ≥ ± 1.96) respectively. Moreover, teamwork skills have a direct insignificant negative relationship with building technology graduates' employability. The relationship is insignificantly negative with path coefficients (β = -0.051, t ≥ ± 1.96). Hence, soft skills account for 0.299% on building technology graduates' employability.

Table 4: T- Statistics and P-Values of generic Skills on Building Technology Graduates' Employability

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Communication Skills -> Graduates' Employability	-0.255	-0.252	0.073	3.510	0.000
ICT Skills -> Graduates' Employability	0.085	0.094	0.043	1.990	0.047
Initiative Skills -> Graduates' Employability	-0.153	-0.149	0.067	2.289	0.023
Personal Skills -> Graduates' Employability	0.012	0.015	0.051	0.235	0.814
Problem Solving Skills -> Graduates' Employability	0.074	0.090	0.054	1.369	0.172
Resource Management Skills -> Graduates' Employability	0.221	0.222	0.069	3.195	0.001
Teamwork Skills -> Graduates' Employability	-0.051	-0.056	0.056	0.910	0.363

Findings and Discussion

From the hypotheses tested, the influence of the independent variables on the dependent variable was determined. Constructs such as ICT skills and resource management skills, each have a significant direct positive relationship with building technology graduates' employability, while personal skills and problem-solving skills constructs, both have a direct insignificant positive relationship with building technology graduates' employability. Consequently, ICT skills and resource management skills have been used to predict graduates' employability [30]. However, based on the analyzed data, communication skills, and initiative skills constructs, each has a significant direct negative relationship with graduates' employability. The above findings are in line with the outcome of the previous study by Othman, M. Hamzah, T. Singh, Abdul Wahab, & Ismail [20] which included personal skills and problem-solving skills in their list of top ten skills sought by Malaysian employers. Apparently, the findings of this study indicated that generic skills have a positive impact on the employability of building technology graduates of technical colleges in Nigeria.

V. CONCLUSION

The aim of this study was to investigate the structural relationship among generic skills elements and building technology graduates' employability by exploring the hypothesized model i.e. "Building technology graduates' employability generic skills model". Validity and reliability of the measures employed in this study were examined and the findings demonstrated good convergent validity and discriminant validity. The above findings, therefore, imply that the curriculum of building technology programs in Nigerian technical colleges need to be reviewed and geared more towards the promotion of such skills in students. It is recommended that teachers or academicians should come out with more interactive ways to develop generic skills among students at every stage to make them become more employable hence, avert them from being unemployed in the future.

REFERENCES

1. T. N. Dahunsi, "Graduate Employability and Communication Skills: An Investigation of Nigerian Graduates' Proficiencies and Areas of Deficiencies in Written English," *World Journal of English Language*, vol. 7, no. 3. p. 49, 2017.
2. H. Bello, B. Shu'aibu, M. S. Bin Saud, and Y. Buntat, "ICT skills for technical and vocational education graduates' employability," *World Appl. Sci. J.*, vol. 23, no. 2, pp. 204–207, 2013.
3. Federal Government of Nigeria, "National Policy on Education," NERDC, Yaba, Lagos-Nigeria., 2004.
4. S. Keller, C. M. Parker, and C. Chan, "Employability skills: Student perceptions of an is final year capstone subject," *Ital. Innov. Teach. Learn. Inf. Comput. Sci.*, vol. 10, no. 2, 2011.

5. M. S. Abdul Hamid, R. Islam, and N. H. Abd Manaf, "Malaysian graduates ' employability skills enhancement : an application of the importance-performance analysis Rafikul Islam and Abd Manaf Noor Hazilah," *J. Glob. Bus. Adv.*, vol. 7, no. 3, pp. 181–197, 2014.
6. S. Shafie, Latisha Asmaak; Nayan, "Employability Awareness among Malaysian Undergraduates," *Int. J. Bus. Manag.*, vol. 5, no. 8, pp. 119–123, 2010.
7. O. S. Pitan and S. O. Adedeji, "Skills Mismatch among University Graduates in the Nigeria Labor Market," *US-China Educ. Rev.*, vol. A 1, pp. 90–98, 2012.
8. P. M. Akanmu, J. O. Clement, and M. Samaila, "Impact of Cooperative Microfinance on the Performance of Women Entrepreneurship in Kwara State Nigeria," *Finance. Mark. Institutions Risks*, vol. 2, no. 4, pp. 20–28, 2018.
9. O. O. Sodipo, "Employability of Tertiary Education Graduates in Nigeria: Closing the Skills Gap," *Glob. J. Hum. Resour. Manag.*, vol. 2, no. 3, pp. 28–36, 2014.
10. A. B. Adebakin, T. O. Ajadi, and S. T. Subair, "Required and Possessed University Graduate Employability Skills: Perceptions of the Nigerian Employers," *World J. Educ.*, vol. 5, no. 2, pp. 115–121, 2015.
11. J. Playfoot and R. Hall, "Effective Education for Employment : A global perspective," *Pearson Inc*, no. February 2009.
12. S. Farooq, "The utilization of education and skills: Incidence and determinants among Pakistani graduates," *Pak. Dev. Rev.*, vol. 50, no. 3, pp. 219–244, 2011.
13. "Examining the evidence : graduate employability at NMMU," *South African J. High. Educ.*, vol. 27, no. 2, pp. 437–453, 2013.
14. U.-U. TVET, "TVET Country Profile Compiled in collaboration with the National Board for Technical Education, Nigeria: March 2019 Bill," 2019.
15. R. Audu, Y. Bin Kamin, A. H. Bin Musta'Amal, and M. S. Bin Saud, "Assessment of the teaching methods that influence the acquisition of practical skills," *Asian Soc. Sci.*, vol. 10, no. 21, pp. 35–41, 2014.
16. R. S. Codding, L. Chan-Iannetta, S. George, K. Ferreira, and R. Volpe, "Early Number Skills: Examining the Effects of Class-Wide Interventions on Kindergarten Performance," *Sch. Psychol. Q.*, vol. 26, no. 1, pp. 85–96, 2011.
17. A. Zaharim *et al.*, "The future demand for employability skills and the implications for the VET system," *Int. J. Eng. Technol.*, vol. 7, no. 2, pp. 1–10, 2002.
18. R. N. Naanda, *The Integration of Identified Employability Skills into the Namibian Vocational Education and Training Curriculum.* 2010.
19. A. M. and K. C. T. Angie Stiles, *Agency resources and planned performance*. Department of Education, Employment and Workplace Relations Agency, 2009.
20. N. Othman, M. I. M. Hamzah, H. K. T. Singh, J. L. Abdul Wahab, and R. Ismail, "Globalization of Higher Education Institutions in Malaysia : A Pilot Study," *International Conference on Social Science and Humanity*, vol. 5. pp. 376–380, 2011.
21. A. D. Usoro and T. C. Ogbuanya, "Measures for Improving the Acquisition of Entrepreneurial Skills in Technology Education by the Polytechnic Students in the South-South States in Nigeria," vol. 2, no. October, pp. 90–100, 2012.
22. J. V. Farr and D. M. Brazil, "Leadership skills development for engineers," *EMJ - Eng. Manag. J.*, vol. 21, no. 1, pp. 3–8, 2009.
23. C. S. Nair, A. Patil, and P. Mertova, "Re-engineering graduate skills - A case study," *Eur. J. Eng. Educ.*, vol. 34, no. 2, pp. 131–139, 2009.
24. D. F. Stodden *et al.*, "A developmental perspective on the role of motor skill competence in physical activity: An emergent relationship," *Quest*, vol. 60, no. 2, pp. 290–306, 2008.
25. S. Okey, E. E. Ayang, and V. E. Ndum, "Entrepreneurship Education in Nigerian Tertiary Institutions : A," vol. 23, no. 1, pp. 1–6, 2012.
26. [26] T. O. Oresanya, O. S. Omodewu, T. T. Kolade, and A. O. Fashedemi, "Vocational Education and Employability : The Nigerian Situation," vol. 5, no. 2009, pp. 2013–2015, 2014.
27. R. Eke, "Handbook of child development and early education. Research to practice," *Educ. Rev.*, vol. 63, no. 2, pp. 252–254, 2011.
28. O. Oji Kennedy, "Reappraising the Work Skill Requirements for Building Technology Education in Senior Secondary School for Optimum Performance in Nigeria," *Int. J. Acad. Res. Bus. Soc. Sci.*, vol. 1, no. 3, pp. 2222–6990, 2011.
29. S. A. Maigari, "Problem-based learning conceptual teaching model for technical colleges in the north-western Nigeria Sada Adamu Maigari Universiti Teknologi Malaysia," Universiti Teknologi Malaysia, 2016.
30. M. M. Inti, "Conceptual Model for Integrating Generic Employability Skills in mechanical Engineering Technology Programme of Nigerian Polytechnics," UNIVERSITI TEKNOLOGI MALAYSIA, 2018.
31. D. Zhang, Q. Wang, J. Stegall, M. Losinski, and A. Katsiyannis, "The Construction and Initial Validation of the Student Teachers' Efficacy Scale for Teaching Students With Disabilities," *Remedial Spec. Educ.*, vol. 39, no. 1, pp. 39–52, 2018.
32. B. J. Babin and R. E. Anderson, *on Multivariate Data Analysis Joseph F . Hair Jr. William C. Black Seventh Edition*.
33. A. B. A. & L. J. O. Inti, Muhammad Muhammad, "Confirmatory Factor Analysis of Oral Communication's Learning Outcomes For Integrating Generic Employability Skills into Mechanical Engineering Curriculum in Nigerian Polytechnics Muhammad," *International J. Educ. Found. Manag.*, vol. 9, no. 1, pp. 146–153, 2015.
34. C. M. M. S. Jos, E Hair, Jr; G.Toma:s M. Huf; Ringle, *Partial Least Squares Structural Equation Modeling(PLS-SEM)*. 2014.
35. [35] G. A. Churchill, "A Paradigm for Developing Better Measures of Marketing Constructs," *J. Mark. Res.*, vol. 16, no. 1, p. 64, 1979.
36. J. C. I. Nunnally and Bernstein, *Psychometric theory 3rd ed. 1994 McGraw-Hill*, vol. 19, no. 3. 1994.
37. S. and T. (DEST) A. C. G. N. C. for V. E. R. (NCVER) Australia. Department of Education, "Employability skills: final report: development of a strategy to support the universal recognition and recording of employability skills, a skills portfolio approach, December 2004. DEST, Canberra, Australian Capital Territory.," 2004.
38. M. A. & Z. Abdullah, "The Construct Validity of Health and Safety Executive 'HSE' Tools for Measuring an Organizational Performance: Evidence from the aviation industry in Yemen," *Aust. J. Basic Appl. Sci.*, vol. 9, no. 22, pp. 103–107, 2015.
39. T. K. Dijkstra and J. Henseler, "Research Essay Consistent Partial Least Squares Path Modeling," *MIS Q.*, vol. 39, no. 2, pp. 297–316, 2015.
40. M. K. Cohen Louis, Manion Lawrence, *Research Methods in Education_ertu_5th Edition_Routledge_London and New York2005_Taylor and Francis e-library*. .
41. M. Byrne, B. Flood, and P. Willis, "Using the student learning framework to explore the variation in academic performance of European business students," *J. Furth. High. Educ.*, vol. 28, no. 1, pp. 67–78, 2004.

AUTHORS PROFILE

Gimba Dogara, Lecturer, Department of Technical Education, Kaduna State College of Education, Gidan Waya, Kafanchan. ggimbadogara@gmail.com

Sukri Mohammad Bin Saud, Professor, Department of Technical and Engineering Education, School of Education, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, MALAYSIA. p-sukri@utm.my

Yusri bin Kamin, Associate Professor, Department of Technical and Engineering Education, School of Education, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Johor, MALAYSIA. p-yusri@utm.my

Bakare Shola Francis is a Lecturer at the Department of Vocational and Technical Education, Faculty of Education, Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria. shola.bakare@aaua.edu.ng