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The built environment craftmanship in higher education institutions: issues and prospects from stakeholders' perception

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Abstract

Purpose – Nigeria has one of the highest graduate unemployment rates in Africa, and there is no comprehensive policy framework to address it. Evidence shows that integrating craftsmanship into higher education academic programmes can enhance graduate employability. Therefore, there is a need to integrate it into the built environment programmes at institutions in Nigeria. The built environment craftmanship (BEC) in Nigeria's HEIs may have had some challenges, although studies about these challenges are scarce. In this regard, the study investigated BEC's perceived encumbrances and proffered measures to integrate craftsmanship skills in Nigerian HEIs built environment programmes.

Design/methodology/approach – The research adopted a qualitative research design using a virtual interview approach to solicit data from 34 experts across Nigeria. An exploratory approach was used to engage selected HEIs in Nigeria and thematic analysis was adopted to analyse the collected data, and saturation was achieved.

Findings – The study findings indicate that integrating BEC in built environment programmes will enhance graduate employment. However, possible encumbrances like institutional frameworks, funding, infrastructural development and pedagogical and social-cultural issues were found to be affecting BEC's integration into built environment programmes at higher education in Nigeria.

Research limitations/implications – Future studies should explore more detailed large-scale investigations about integrating craftsmanship into higher education institution (HEI) programmes.

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Originality/value – Given the dearth of pragmatic studies on the built environment graduates' unemployment in Nigeria, this research contributes to the academic community debates on reducing graduates' unemployment via BEC in HEIs.

Keywords Construction practitioners, Craft experts, Encumbrances, Nigeria, Training needs

Paper type Research paper

1. Introduction

The focus of 21st-century higher education institutions (HEIs) is to train graduates with skills and attributes to gain employment (directly or indirectly). These skills and attributes are expected to make them succeed in the future. Irwin *et al.* (2019) affirmed that student employability is critical to HEIs. The intention for a better job opportunity is why people invest in higher education. The global expansion of higher education has shown that higher education qualification is inadequate for a graduate role (Smith *et al.*, 2021; Aliu *et al.*, 2022a, 2022b). Tomlinson *et al.* (2017) avowed that employers focused more on work experience to make employment decisions during selection. Employability is significant in enhancing competition for job roles where higher education qualifications are no longer adequate to secure the post (Helyer and Lee, 2014; Aliu *et al.*, 2022b). Smith *et al.* (2021) identified several mechanisms for work experience while schooling. It ranges from work-based projects to paid work appointments during important periods. The British tertiary education system, which Nigeria is coping has modified its system to address the skills gap and industry needs. Smith *et al.* (2021) asserted that one of the initiatives introduced by the United Kingdom is degree apprenticeship in selected fields. Apprenticeship is an acquired craft skills to be trained under a specialist mentor. This is a form of HEIs craftmanship. The skill training model involves company owners paying salaries and related costs while the employers settle the HEIs tuition fees through an apprenticeship levy (Smith *et al.*, 2020).

In Nigeria, several initiatives from the government failed to yield results. From the Industrial Training Fund (ITF) that established the Students Industrial Work Experience Scheme (SIWES) in the 90s (Afolabi *et al.*, 2017) to the inclusion of entrepreneurship education into curricula of Nigerian tertiary institutions in 2006 (Gabadeen and Raimi, 2012). Yahya (2011) asserted that the National Board for Technical Education (NBTE), National Universities Commission (NUC), and National Commission for Colleges of Education (NCCE) were given orders by Education Ministry to introduce entrepreneurship education into the curricula of Nigerian HEIs. Entrepreneurship education via skills development in a specified field or trade to become self-reliance and create jobs is a component of HEIs craftmanship. But entrepreneurship education in Nigeria may have faced some encumbrances. Several past national plans initiated by successive Nigerian Governments emphasised the need for a highly skilled workforce. Examples are Vision 2010, National Economic Empowerment and Development Strategy (NEEDS), Vision 20–2020, the Transformation Agenda, the National Poverty Eradication Programme, National Directorate for Employment, the Small Medium Enterprises Development Agency, etc. Yet, no significant results to show for them (Afolabi *et al.*, 2017).

With over 170 Nigerian universities as of 2021 (Nwajiuba *et al.*, 2020; Statista, 2022), about 152 polytechnics (National Board for Technical Education, 2022) and 152 colleges of education (National Commission for Colleges of Education, 2021), churning up unemployable graduates (Ebekozien *et al.*, 2021), stakeholders are concerned and argued that the educational system needs an all-inclusive skills integration. As of the 4th quarter of 2021, Nigeria's unemployment and youth unemployment rates were 33.30 and 42.50%, respectively (National Bureau of Statistics, 2022; Trading Economics, 2022). This figure is of concern to stakeholders. Trading Economics (2022) identified other African countries' unemployment rates. This includes South Africa (34.9%), Namibia (33.4%), Angola (32.9%), Mozambique (25.04%), Lesotho (24.7%) and Swaziland (23.4%). It reveals that Nigeria is among the top African countries with the highest unemployment rate (33.30%), including graduates. Thus, the need to evaluate the relevance of

Nigeria's built environment craftmanship (BEC). It calls for concern because there is no comprehensible policy addressing high unemployability. Studies (Ryan and Lorinc, 2018; Decker, 2019; Mulkeen *et al.*, 2019; Fabian *et al.*, 2021; Higgs, 2021; Smith *et al.*, 2021) have shown that HEIs craftmanship can enhance graduates' employability. It is a programme that has played the role of knowledge transfer in many advanced countries (Decker, 2019).

The Nigerian Governments have made several attempts to address unemployment and underemployment via various initiatives such as N-Power, the Bank of Industry Youth Entrepreneurship Support Programme, the Central Bank of Nigeria support programmes, Bank of Agriculture support schemes, the inclusion of entrepreneurship education, etc (Ujumadu, 2019). Osuizugbo *et al.* (2022) identified the spirit of entrepreneurship, role model, interest and passion, government policies as factors influencing craftsmanship career decisions in Nigeria. But not from the perspective of undergraduates being trained as an advantage for job creation and professional competencies. Currently, there is no comprehensible policy to address unemployability from the root (craft skills while in higher education programmes), including the built environment graduates. The government emphasised that HEI graduates should tailor their energy to entrepreneurial development, innovation and creativity (Vanguard, 2017). Entrepreneurial development courses integrated into HEIs programmes may have failed to yield the expected results. This is one of the study's motivations.

This study is a response to the challenge to promote construction craft skills in addition to the higher education programme within the built environment. The study's novelty intends to emphasise the uniqueness of BEC and how, if implemented in Nigeria's HEIs will solve the unemployment issue at a time when several previous programmes have not succeeded. The study is germane and timely. Previous programmes not tailored towards skill acquisition related to the field of training may have contributed to the failure. This study seeks to redress the gap in entrepreneurship development education approved for HEIs. It intends to propose apprenticeship skills integration of related fields (construction craft skills) into Nigerian HEIs built environment programmes. Afolabi *et al.* (2017) identified plumbing, electrical, painting, tiling, welding, upholstery, carpentry, joinery, brick-laying, block-laying, concreting/plastering, steel fixing, roofing, aluminium fixing, draughtsman and landscaping skills as construction craft skills in the built environment. The study adopted quantity surveying, architecture, building/building technology, land surveying, estate management, urban and regional planning and civil engineering as the major built environment disciplines (Afolabi *et al.*, 2017; Ebekozien *et al.*, 2022). The study will promote built environment graduates' employability by acquiring craftsmanship during higher education programmes. Also, the research is an emerging niche in a bid to revitalise Nigeria's higher education institutions (HEIs), especially the built environment, to serve its purpose in society, especially in the developing world. Therefore, the research intends to examine the relevance of BEC and investigate the perceived challenges facing Nigeria's BEC. It proffered measures to integrate construction craft skills growth in Nigerian HEIs built environment programmes. The researchers will fill the emerged theoretical gap through the following objectives:

(1) To examine the relevance of BEC in Nigerian HEIs.

(2) To investigate the perceived encumbrances facing the proposed BEC in Nigerian HEIs.

(3) To suggest measures to integrate construction craft skills in Nigerian HEIs built environment programmes.

2. Literature review

2.1 Overview and relevance of the built environment programme apprenticeship/ craftmanship

Apprenticeship is a process designed to allow people willing to acquire craft skills to be trained under a specialist mentor. Various countries, such as Hong Kong have "enhanced construction

manpower training schemes" (Ho, 2016). In Ghana, "National Apprenticeship Programme" (Donkor, 2012) has implemented programmes to train young people willing to learn craft skills. In Nigeria, the N-Power apprenticeship scheme is one of the programmes created to proffer solutions to skills and labour shortages and youth unemployment (Federal Government of Nigeria, 2017). This scheme is open to fresh graduates, but many may not be willing to learn skills after four to five years in HEIs. This reveals a gap in the existing programmes. Thus, one of the motivation of this study is to introduce relevant craft skills while schooling as an advantage and better job performance. Craftman or artisan is a person who has acquired the basic skills in one or two trades. The person must be certified by the mentor or supervised trainer (Asiyanbola, 2018). Awe (2017) identified painter, bricklayer, carpenter, cement mason, plumber, electrician, pipe-fitter, plasterer, glazier, equipment operator, ironworker, roofer, sheet metal worker and surveyor technician as the major construction crafts careers. Evawoma-Enuku and Mgbor (2005) affirmed that the National Directorate of Employment developed the Open Apprenticeship Scheme, Waste to Wealth Scheme and School on Wheels Scheme to provide young people the opportunities to acquire craft skills. Also, the Nigerian Institute of Building and the profession's regulation created the N-Build scheme to train young people in building-related skills (Osuizugbo *et al.*, 2022). The N-Build is part of the N-power. The N-Power is a National Social Investment Programme tailored to empower the youth via human capital growth (Sambe, 2019). Also, Julius Berger Nigeria Plc and the Federation of Construction Industry established artisanal skills development academy to proffer solutions to the shortage in crafts skills (Julius Berger Nigeria, 2020). Yet, the rate of youth unemployment is growing higher.

Higher education qualification apprenticeship in England implies studying while working (Fabian *et al.*, 2021; Smith *et al.*, 2021). This is a shift from the conventional degree-level study. The craft skills integrated degree is like several European vocational education and training (VET) systems (Protsch and Solga, 2016). As used in this research, the term "BEC" describes a scenario where one or two construction craft skills are practically learnt by intending built environment graduates while in HEIs. This study intends to produce practitioners and craft skills within the built environment graduates to mitigate unemployability in the built environment sector. Craftmanship is not a new concept. In the United Kingdom, there is a degree apprenticeship model and likely to give a new route to highly-paid work (Smith *et al.*, 2021). Fabian *et al.* (2021) opined that this approach would build a better pool of more highly-skilled practitioners. But express concern about the implementation and evaluation. It is a concept that will address the skill gaps in the industry, diversification and brings the craftmanship workplace with HEI study close (QAA, 2019). Decker (2019) affirmed that apprenticeships had played a significant role in knowledge transfer to bridge the skills gap and possible future industry crises. In recognition of apprenticeship roles, the Workforce Innovation and Opportunity Act (WIOA) in the USA was signed into law in 2014 with an annual budget of $90 million. The funding apprenticeship initiative is from the Department of Labour, USA (Craig and Bewick, 2017). Successive administrations committed to and supported the programme (Decker, 2019). Ernest *et al.* (2015) avowed that entrepreneurship education would positively contribute to wealth creation through job creation. It is a platform to groom upcoming inventors and innovators if well implemented. Mihail (2006) and Kapareliotis *et al.* (2019) emphasised that internships prepare students for better job opportunities and readiness for innovative skills.

2.2 Issues in BEC

Bilsland *et al.* (2019) identified inadequate stakeholder collaboration as a potential hindrance to internship value. The stakeholder in this context includes the local HEI, intern work supervisors and the internship placement (Nor Azazi *et al.*, 2022). Lax government agency apprenticeships oversight, inadequate legislation, social and cultural perceptions and funding challenges are possible drawbacks of apprenticeship (Decker, 2019). Mulkeen *et al.*

(2019) grouped higher education apprenticeships' challenges into cost implications, administrative, information requirements, learning and evaluation, student-centred issues, mentor training, logistics and parity and equity problems. The industry needs to know the time, resources and financial commitment expected from their end for the apprenticeships. Hogarth *et al.* (2014) argued that the industry might welcome the prospect of apprenticeships, they have concerns regarding the administration of the apprenticeships. This includes cost implications, sharing firms' novelty and teaching instructors. Lack of funding, inadequate teaching pedagogy and inadequate infrastructure were identified as hindrances to teaching basic employable skills (Nwajiuba *et al.*, 2020). Afolabi *et al.* (2017) found a lack of interest in higher education students, commitment from stakeholders, emphasis on theory, inadequate technologists/technicians and inadequacies in construction craft skills curriculum as the basic hindrances to the acquisition of craft skills in HEIs.

2.3 Measures to promote BEC in HEIs

Gabadeen and Raimi (2012) suggested that the National Youth Service Corps (NYSC) scheme should be a platform to foster the further acquisition of entrepreneurship skills during the service year. It could take about 6-month intensive practical skills and support 50% of budgetary allocation to each corps member to start-up business. The emphasis on business as against skills for innovation and craftmanship is part of the lacuna in the present entrepreneurship development courses in Nigerian HEIs. Stakeholders must balance collaboration between the industry and HEIs (Fabian *et al.*, 2021). Fabian *et al.* (2021) recommended mentoring activities to ensure work and student identity coherence to promote student engagement. Coordinated support from the based-HEI and the industry is key to successful internship learning (Bilsland *et al.*, 2019). Internship learning is a potential platform for job opportunities and experience to achieve the self-transformative vision. Decker (2019) recommends soft skill training tailored towards best practice designs. It involves critical thinking, customer service, troubleshooting techniques and communication. The host (HEIs) needs to develop a cost and sharing model with other stakeholders' (Mulkeen *et al.*, 2019). This is key because training is cost-related, and there could be opportunities/prospects. Stone and Worsley (2021) recommended a supportive programme network to identify and offer flavour of the academic level and commitment needed. Thus, a learning agreement is germane to guide the hosting industry. The agreement will form the framework to discuss all stakeholders' expectations, support and funding.

In summary, several literature such as Evawoma-Enuku and Mgbor (2005), Donkor (2012), Ho (2016), Afolabi *et al.* (2017), Craig and Bewick (2017), Asiyanbola (2018), QAA (2019), Sambe (2019), Smith *et al.* (2021) and Osuizugbo *et al.* (2022) have worked directly or indirectly on craftmnship. Besides none regarding the BEC to enhance graduates' employability. In Nigeria's context, there is a paucity of literature as reviewed. Also, the few past initiatives, including entrepreneurship development in HEIs failed to yield the expected results. Thus, the study intends to introduce relevant craft skills while schooling in HEIs as an advantage and better job performance, especially for the built environment programmes in developing countries, using Nigeria as a case study.

3. Research method

The research adopted a qualitative research design. The qualitative research design allows the investigator to get in-depth opinions and knowledge of the participants concerning the phenomena under investigation (Polit and Beck, 2017; Amoah and Simpeh, 2021; Ebekozien and Aigbavboa, 2021; Ibrahim *et al.*, 2022). It aligned with Bilsland *et al.* (2019) which adopted a qualitative approach via semi-structured interviews to explore employability in work-integrated learning in transnational education. Thus, the researchers studied the key stakeholders' perceived encumbrances in integrating construction craft skills in Nigerian

HEIs-built environment programmes. The research adopted the phenomenological perspective via theme. The phenomenological focus is on the experience of the central phenomenon that describes a lived experience of a phenomenon. It allows the investigator to obtain the deep meaning of people's perception regarding phenomena rather than depend on numbers (Thanh and Thanh, 2015; Jaafar *et al.*, 2021; Ebekozien and Samsurijan, 2022).

The target population includes built environment students interested in enrolling in construction craft skills, industries willing to collaborate with graduates in craft skill acquisition, built environment professionals in academics and industry, government regulatory agencies and HEIs management teams in Nigeria. The study population and data collection method aligned with Mulkeen *et al.* (2019). Mulkeen *et al.* (2019) utilised the same approach in exploring the challenges and prospects of degree in apprenticeships. Purposive sampling was utilised to choose participants who were part of the study's population. Purposive sampling allows the investigator to identify competently and have knowledge based on the study's aim (Blumberg *et al.*, 2008; Ebekozien and Aigbavboa, 2021). From the 45 intending participants, 34 virtual interviews were conducted and analysed, giving a response rate of 75.6%. It is in line with Creswell (2007). The author affirmed that a sample size of 20–30 interviews is adequate for data collection. Also. Guest *et al.* (2006) achieved a saturation point at the 12th participant in their research, Hennink *et al.* (2017) achieved a saturation point where no new concept was apparent in the 9th participant. In this research, the saturation point was achieved at the 30th participant and validated that 34 participants for the analysis were adequate.

The study planned a face-to-face interview but modified it to a virtual interview because of the COVID-19 regulations and adopted a semi-structured approach. Reja *et al.* (2003) asserted that the semi-structured question pattern is suitable when the investigator has little experience with the subject matter. The participants' designations prove they are knowledgeable in craftmanship in Nigeria, as presented in Table 1. Table 1 revealed the participants' demographic information, such as the participant group, current position, work experience and geopolitical zone. The interviews were conducted virtually between January 2022 and early March 2022. A maximum of two interviews were conducted in a day.

Participant	Rank/Firm	Years of experience	Geopolitical zone/Location and participant code						
			SS	SW	SE	NW	NC	NE	Total
Built environment professionals in academics	Not below (NB) Lecturer 1 rank	NB 10 years	1	2	3	4	5	6	*6*
Built environment professionals in practice	Directors, Managing Partners, Partners	NB 25 years	7	8	9	10	11	–	*5*
Higher education institutions	Academic planning unit/ division	NB 28 years	12	13	14	–	15	–	*4*
NUC/NBTE	NB Senior Staff	NB 15 years	–	–	–	–	16–17	–	*2*
Industry willing to collaborate graduates craft skills acquisition	Not less than management staff in construction and manufacturing companies	NB 20 years	18	19	20	21	22	23	*6*
Students interested in enrolling in construction craft skills	Year 1 and 2 in Higher National Diploma and year 4 and 5 in BSc/B.Tech	6-months industrial training	24–26	27–28	29–30	31	32–33	34	*11*
Total									*34*

Note(s): SS = South-South, SW = South-West, SE = South-East, NW = North-West, NC = North–Central and NE = North-East
Source(s): Authors own work

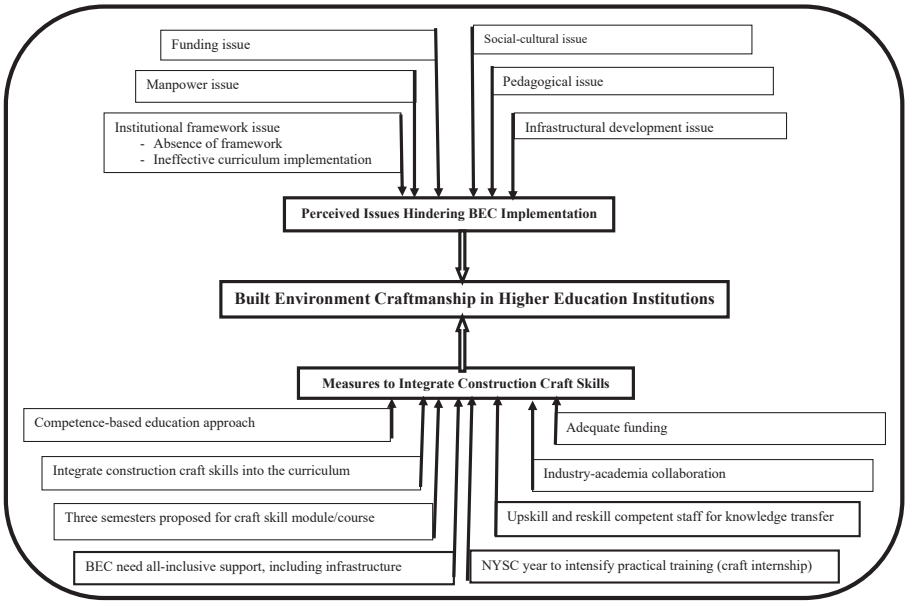
Table 1. Summary of interviewees' background

Before the main study, ethical approval was granted by the corresponding author's institution via the supervising Professor, and a pilot virtual was carried out with four interviewees. On average, the interview took 45 min via Zoom and WhatsApp video calls. Appendix shows the cover letter and semi-structured interview questions.

The collected data were analysed by thematic analysis to develop the codes and conducted manually. First, the 34 documents were read many times by the investigators because they were the coders. It allows interviewees' viewpoints to be captured in a phenomenon. Two-phase systems were employed. The same approach was utilised by Ebekozien (2020). Saldana (2015) identified the first coding as open coding. The second phase involves using the sub-themes from the open coding that generated 66 codes to re-read the document and find new constructs. The investigators used the thematic approach to understand the common pattern. The study's objectives aided in the development of the major themes. The themes emerged from 10 categories, while the categories emerged from 66 codes. The researchers utilised triangulation, member checking and researcher reflexivity as the validity techniques of the collected data. Also, narrative, invivo and theming techniques were adopted as coding techniques (Saldana, 2015). The author confirmed that these techniques are appropriate for data coding.

4. Findings and discussion

The participants' demographic features are shown in Table 1. It reveals that the majority (67.6%) of the participants have above ten years of experience in their respective field. Though the names of the participants were concealed, the rank/post of the participants, apart from the students, shows that they are highly qualified and represented. The study's findings will be reliable because of the diverse participants professional backgrounds and experience. The main findings are presented in three themes. Figure 1 illustrates the thematic network of the perceived encumbrances facing BEC implementation and suggested measures to integrate construction craft skills in Nigerian HEIs built environment programmes.



Source(s): Authors own work

Figure 1.
Thematic network of built environment craftmanship in higher education institutions

4.1 Theme 1: relevance of BEC in Nigerian HEIs

Evaluating the relevance of BEC in the era of increasing unemployable graduates and skills gaps in the built environment industry has become germane. The prospect of graduate employability starts from HEIs. The participants agree that for the built environment graduates to be more employable and competitive with their counterparts across the globe in the 21st century, the role of craft skills acquisition while in HEI cannot be over-emphasised. Major findings across the zones show that BEC will improve employability, increase self-employment, enhance entrepreneurship instincts and improve self-sufficiency. Employment opportunity is one cardinal reason for establishing HEIs to teach and train students. So, employability is key to every HEI. Others are better chances of business and creativity opportunities (P1, P3, P5, P7, P12, P18, P25, & P31), mitigate skills shortage and improve quality of construction works (P1, P2, P4, P8, P10, P15, P16, & P28), enhance construction knowledge and sustainability (P8-P11, P13, P17, P18-P23, & P25) and leads to higher productivity on construction sites (P1-P11, P25, & P33). It shows that BEC in Nigerian HEIs is a win-win for the mentors and their apprentices (students) (P2, P5, P12, P23, P32, & P34)). Participant P4 says, " . . .. .*the proposed programme will allow intending graduate trainees/ apprentices learned skilled crafts such as painting, tiling, steel fixing, etc. The mentors, in return, will gain increasingly more valuable labour skills from the trainees, in addition to the theoretical knowledge from the classroom* . . .." Findings agree with Fuller and Sigelman (2017). The authors asserted that apprenticeship has a mutually beneficial relationship.

Also, findings reveal that entrepreneurship training via construction craft skills in the built environment will improve competitiveness and economic advancement through job creation and innovation (P1, P3, P8, P20, P30, & P31). P23 says, ". . .. . *learning construction craft skills along with the degree will enhance student's competencies and promote better chances for meaningful employability. This is one of the cardinal reasons for higher education training, and stakeholders need to encourage this noble concept to bridge the skills gap in the industry* . . .." Many unemployed graduates have good credentials but no basic skills in their craft-related field (P18 & P23). Findings agree with Ernest *et al.* (2015). The authors discovered that teaching entrepreneurship education to the built environment students would enhance their career advancement and job opportunities. It has a prime significance regarding entrepreneurial learning competencies. ". . .*it will be a welcome development if policymakers and education regulators can implement BEC to replace entrepreneurship education in Nigerian HEI, especially in the built environment programmes* . . .. *It is painful and a waste of resources to ask a quantity surveying or building or architectural students to write a report on how to produce palm oil. At the same time, there are a thousand and one related craft skills in their field to explore* . . ...." said P13. Findings agree with Afolabi *et al.* (2017) and identified plumbing, electrical, painting, tiling, welding, upholstery, carpentry, joinery, brick-laying, block-laying, concreting/plastering, steel fixing, roofing, aluminium fixing, draughtsman, landscaping skills, etc., as built environment construction craft skills. Findings reveal that the proposed construction craft skills will be relevant to the students field of study. " . . .. *there is no higher education qualification that guarantees one a good job in and by itself given the current economic situation and the fast pace of economic and technological shifts. But the chances are brighter with apprenticeship skills acquired in related areas while in school, especially for the built environment graduates* . . .." Apart from increasing self-employment of construction apprenticeship skills, it would increase business opportunities for young graduates. Findings agree with Ujumadu (2019). It was reported that President Muhammadu Buhari told Nigerian graduates that higher education qualification(s) was no longer an assurance for employment but needed to develop skills that would assist them in facing life's challenges. Governments have not done enough to equip them with skills while in school and create the platform, especially for the thousands of new graduates yearly. This is part of the study's motivations.

4.2 Theme 2: perceived encumbrances facing BEC

Theme two presents perceived issues hindering the proposed BEC in Nigeria's HEIs in the 21st century. Findings across the board agree that issues would continue to hinder built environment graduates' employability if not curtailed. One of the germane points that emerge from this theme is that the government, directly or indirectly, is the major contributor to BEC introduction issues. Findings grouped the main perceived issues into six sub-themes (institutional framework, funding, manpower, infrastructural development, pedagogical and socio-cultural issues), as summarised in the top layer of Figure 1. Some of the issues are interconnected.

4.2.1 Institutional framework issue. Findings reveal that the absence of an institutional framework and ineffective curriculum implementation contributed to the lax management of entrepreneurship education in Nigerian HEIs. The essence of entrepreneurship education in the curricula was to bridge graduate unemployment via skill and entrepreneur training (P12-P15). P13 says, " . . .. *the entrepreneurship development courses prescribed for HEIs were not set on a sound institutional framework. So, the intention is to train new graduates towards skills and innovation via entrepreneurship development within their related disciplines was abused by some top management teams of HEIs and directors (Centre for Entrepreneurship Development).* . . .."

4.2.2 Funding issue. Besides policy enforcement, funding is one key variable determining policy or programme outcomes. Funds are one major challenge confronting Nigerian education, including higher institutions. Past governments have attempted to mitigate graduate unemployment via various policies and programmes tailored towards skills development for job creation, such as N-Build scheme, N-Power, artisanal skills development academy, etc., but failed because of inadequate funding and the absence of an institutional framework for consistency and sustainability (P4, P9, P11, P15, P17, & P20-P23). Findings agree with Evawoma-Enuku and Mgbor (2005) and Osuizugbo *et al.* (2022). The authors discovered that most of the past craft skills schemes and programmes tailored to lift the young from unemployment failed to achieve their intended results because of inadequate funding and a consistent framework. " . . .. *we cannot operate productive craft skills centres without proper funding. We managed to secure full accreditations, not because of functional workshops and laboratories but based on personal relationships with the accreditation team members. Setting up workshops is capital intensive, and TETfund has been over-stretched* . . .." said P12.

4.2.3 Manpower issue. Craftmanship skills development requires competent lecturers/instructors/technologists to make the craft more practical-oriented than theoretical instructions. " . . .. *our entrepreneurship lecturer and instructor specifically told my group not to bother to make the palm oil but buy from the market and write a report on how it was processed. I was never taken to an oil mill although practical is not relevant to my discipline* . . .." said P25. The participant, who is an intending building graduate alleges to be learning tiling skills during semester holidays and weekends. P12 says, ". . . *in many HEIs, lecturers and instructors assigned to teach entrepreneurship development were unqualified and scandalously unequal with no entrepreneur background. Worse is the non-availability of basic facilities for practical* . . .." Findings agree with Ernest *et al.* (2015) and found skilled instructors/lecturers inadequate to teach students key craft skills.

4.2.4 Infrastructural development issue. Majority of the facilities connected with craft skills development are capital intensive and connected with issues of the paucity of funds in the education sector. One perceived issue is the paucity of local learning materials for tutors and students to guide. P5 says, " . . .. *apart from the local teaching materials for construction craft skills, we here are faced with the infrastructure issue. Our workshops are under-funded and incapacitated to conduct any meaningful demonstration and practical* . . .." P15 corroborates P5 submission that there is non-availability of basic facilities for practical.

4.2.5 Pedagogical issue. Findings reveal that the incompetence of some lecturers/instructors/technologists/technicians may affect BEC implementation in HEIs. P2 says,

" . . .. *many of my colleagues teaching entrepreneurship development are theoretically based. They are there because of the stipend and practicals that will be shared at the end of the semester. It is unfortunate. This problem is from the directors. Sometimes, some school management imposes 'loyal staff' that the centre must consider . . ..*" This issue will negatively influence BEC implementation if not checked. Findings agree with Nwajiuba *et al.* (2020). The authors discovered that many Nigerian HEIs lack adequate teaching pedagogy to teach employable skills. Practical-oriented teaching should be encouraged in craftmanship and skills development (P7, P14, & P20).

4.2.6 Socio-cultural issue. Many students in HEIs perception regarding craftmanship skills development is negative. To them, craft skills are for jobs for uneducated persons (P24-P34). Also, this reflected society and contributes to the desire to push for paper credentials instead of skill credentials. Findings agree that attitude towards craftsmanship should be more encouraging than paper qualifications. " . . .. *the paper qualification mentality of an average Nigerian may hinder this novel intention. How do you intend to convince the children of the rich and mighty to participate in the craftmanship skills for a better chance to create employment or be employed when they know that jobs are already waiting for them? This is critical. Well, if it becomes mandatory, they will not have an option. Do you think policymakers will allow this to see the light of day . . . ?*" said P23. Findings align with Afolabi *et al.* (2017). The authors discovered a lack of higher education students' interest and inadequacies in construction craft skills curriculum as the basic barriers to acquiring craft skills in higher institutions.

4.3 Theme 3: possible measures to integrate construction craft skills

The theme provides the platform to suggest measures to integrate construction craft skills in Nigerian HEIs built environment programmes. All-inclusive and bold measures via pragmatic policies are required to mitigate the persistent unemployment of Nigerian built environment graduates. Also, by extension, it will fill the demand-supply gap in construction craft skills. At the bottom section of Figure 1, the summarised measures are presented in a thematic network pattern. Findings across the board agree that possible measures could promote the introduction of BEC implementation in Nigeria. Industry-academia collaboration, competence-based education approach, review of entrepreneurship development practical modules of environmentally built programmes (curriculum review), adequate funding, provision of basic infrastructure and stakeholders support emerged as the major measures to integrate construction craft skills in Nigerian HEIs built environment programmes.

Findings show that integrated collaboration with key stakeholders is vital to introduce construction craft skills training for the built environment students via the built environment curriculum upgrade in Nigerian HEIs. To develop an all-inclusive curriculum that can capture the key construction craft skills will require more stakeholder's co-creative collaboration and flexibility. P10 says, ". . . *apart from proposing compulsory construction craft skills for higher education students; the 21*st*-century academic-industry needs to be more open to collaborative training, educational activities, consulting activities, and research activities to enhance employability of their graduates . . ..*" Collaboration and thinking outside the box are the key variables to empower these intending graduates to face the future's reality. Findings agree with Ishengoma and Vaaland (2016). The authors discovered that student internship (collaborative education activities) and practical training in the industry (collaborative education and training activities) play an important role in enhancing students employability. " . . .. *we in the industry are ready to give back to society via supporting quality and comprehensive training, but we need to prepare and budget for the cost implication. Training is involved, and motivation to both the trainees and trainers via bonuses cannot be over-ruled for productivity . . ..*" said P20. Findings agree with Mulkeen *et al.* (2019). The authors suggested more co-creation, cooperation and collaboration between key

apprenticeship stakeholders. This is key because apprenticeships will increase costs and affect core business resources if not well planned. Findings reveal that the competence-based education approach is an all-inclusive mechanism that allows stakeholders to consider the industry needs (P4, P7, & P12). It is tailored towards empowering students to be more purposeful in industry or job offering. Participant P7 says, " …. *the approach creates a platform to acquire or learn new competencies because HEIs focus on future occupation. Accomplishing and sustaining best standards are few of the outputs* …" This is paramount because competence-based education enhances professional trust (Afolabi *et al.*, 2017).

Regarding curriculum review, findings agree that HEIs stakeholders need to review the curriculum to integrate construction craft skills as compulsory modules/courses for at least three semesters. P13 says, " …. *the National University Commission, National Board for Technical Education, various professional and regulatory bodies within the built environment, HEIs managers, industry representatives, and non-governmental organisations related to education matters should create a platform for a detailed discussion regarding Nigerian graduates' employability* …." The conversation will lead to construction craft skills integration into the built environment curriculum. It is a welcome development and fills the construction craft skills gap created by lax entrepreneurship development education (P3, P5, P12, P14, P17, P20, & P23). Findings agree with Afolabi *et al.* (2017) and they urged key stakeholders to revisit the built environment education curricula and suggested integrating construction craft skill acquisition in HEIs. As part of the measures to introduce BEC, the study suggests an improved curriculum to cover two construction craft skills acquisition for built environment students (P4, P10, P13, & P21).

Also, the Nigerian government made a few attempts to tackle the issues of youth unemployment and underemployment via a matrix of initiatives, yet the issue persists. Thus, there is a need to overhaul the built environment programmes curriculum and integrate craft skills acquisitions with a sustainable implementable framework (P2, P13, P16, & P25). P25 says, " …. *for example, initiatives such as N-Power, the Bank of Industry Youth Entrepreneurship Support Programme, and the Central Bank of Nigeria and Bank of Agriculture support schemes should be introduced to students and built into their relevant areas as part of entrepreneurship development course* …." The purpose of entrepreneurship courses in higher education has failed because there was no operational framework. Future studies need to develop a framework for acquiring construction craft skills via the proposed revised built environment programmes curriculum. This is pertinent. " …. *How do you expect intending built environment graduates to make bathing soup or palm oil as part of their practice in their entrepreneurship courses against painting, tiling, plumbing, aluminium fixing, landscaping craft skills, etc.? This is the trend in many HEIs. The students are not engaged in practical-related courses* …." said P6. Findings show that entrepreneurial development courses integrated into HEIs programmes failed to yield the expected results and urgently need overhauling.

As part of the measures to promote the integration of construction craft skills, findings suggest that the compulsory service year for graduates below 30 years could be used to strengthen their acquired skills via government-sponsored internships in related private and public organisations. P27 says, " …. *what is the relevance of an architect or quantity surveyor being forced to teach Biology or Agricultural Science while graduates that read related biological disciplines are working in banks and oil companies? Why not use the period to train us more in related craft skills? We can develop the craft skills more during the one-year service* …." Findings slightly agree with Gabadeen and Raimi (2012). The authors recommended that the NYSC scheme should be a platform to foster the further acquisition of entrepreneurship skills during the service year and supported with the six-month budget for a business start-up. Findings reveal that craft skills training at HEIs needs an all-inclusive mechanism. P11 says, " …. *the task should not be left to government alone if we are serious and want to close the*

graduate unemployment gaps because many are joining the over-saturated labour market yearly. The industry, the various professional institutions, and their regulatory bodies need to overhaul their relationship with HEIs regulatory agencies. The outcome would assist in developing a sustainable and institutional framework for the built environment students in related craft skills within their four- or five-year programme as part of the curriculum. It should be made compulsory for their graduation …." This is germane and will promote apprenticeship growth in Nigerian HEIs built environment programmes. Findings agree with Sambe (2019) and Julius Berger Nigeria (2020). The former author avowed that the Nigerian Institute of Building and Council of Registered Builders of Nigeria developed the N-Build scheme in conjunction with the Nigerian Government. Julius Berger Nigeria (2020) reported that the company and the Federation of Construction Industry created the FOCI-JBN artisanal skills development academy. The academy was established to train crafts skills. Apart from targeting non-graduates' unemployment, the programmes failed to yield results.

5. Contribution to theory and practice

This section presents BEC in HEIs and its contribution to theory and practice. Few related studies (Ho, 2016; Awe, 2017; Asiyanbola, 2018; Nwajiuba *et al.*, 2020) have been conducted but not about Nigeria's BEC, apart from Afolabi *et al.* (2017). Apart from past studies' results not being derived from all-inclusive stakeholders, they were either reviewed or quantitatively analysed. The present study explored the relevance of the proposed BEC, perceived encumbrances and measures to introduce construction craft skills in Nigerian HEIs built environment programmes.

The study established that the proposed introduction of BEC in Nigeria's HEIs will improve graduates' employability but may be confronted with some encumbrances. Thus, the perceived encumbrances might have contributed to the failure of the government's past major job creation initiatives. Implementing this initiative in Nigeria's HEIs may solve the unemployment problem at a time when several previous programmes, such as the N-Power, failed. The study discovered that the proposed BEC demands all-inclusive stakeholders support and a sustainable institutional framework supported by industry-academia research collaboration. The collaboration will bridge the construction craft skills gap and improve the employability of built environment graduates. This is paramount in the 21st-century because job appointment is now beyond paper qualifications but focusing on skills. Figure 1 reveals the emerging thematic network of the major findings. This is part of the paper's theoretical contributions. The research explored the perceived issues and proffered measures to integrate construction craft skills in Nigerian HEIs built environment programmes from a theoretical perspective. Theoretically, the research's result will improve the built environment graduates' employability and, by extension, to other disciplines in HEIs. This is one of the study's motivations. Also, variables such as "lax management of entrepreneurship," "institutional framework for consistency and sustainability," "upskilling and reskilling craft skills," among others, are constructs that emerged and formed part of the study's theoretical contribution.

Regarding the study's practical implication, the research validates that the proposed introduction of Nigeria's BEC in HEIs curriculum in the 21st-century education system cannot be over-emphasised. Besides improving graduates' job creation and enhancing professional service delivery by focusing on the industry's needs, findings would benefit academia in higher education and education in general. Embracing BEC introduction in HEIs curriculum and establishing the framework in line with global best practices will improve built environment graduates' employability. The government has to play the key leading role in promoting BEC in HEIs and support via policies and programmes, including viable funding. The study intends to stir stakeholders in the built environment HEIs. It will push for

a review of the curriculum and integrate construction craft skills in Nigerian HEIs built environment programmes. Moreso, the study may facilitate developing a unified minimum curricula framework tailored towards introducing BEC in HEIs. Other disciplines and developing countries with a similar challenge of graduates' employability may adopt measures recommended by this research and acclimate.

6. Limitations and areas for future study

The research covered Nigeria with a good representation of the six geo-political zones but was conducted via a virtual interview. Thirty-four participants finally responded to the invitation and were engaged with saturation evidence at the 30th participant. The sample size does not negatively impact the study's results because of the extensive reviewed literature. Therefore, future research is needed to validate the findings. Also, a proposed framework on how BEC will be introduced, and the roles of the stakeholders should be developed in a future study.

7. Conclusion and recommendations

This study offered evidence regarding introducing BEC in HEIs to enhance employability, perceived encumbrances and proffered measures to integrate construction craft skills in Nigerian HEIs built environment programmes. Findings reveal that the relevance of BEC in the era of increasing unemployable graduates and skills gaps cannot be over-emphasised. The past initiatives, including entrepreneurship development in HEIs failed to yield the expected results. Thus, unemployed graduates are on the increase, including the built environment graduates. Addressing the possible root cause cannot be over-emphasised. The study grouped the perceived issues hindering introducing BEC into six sub-themes (institutional framework, funding, manpower, infrastructural development, pedagogical and socio-cultural issues). Measures were proposed from key stakeholders' perspectives to integrate the proposed construction craft skills in Nigerian HEIs built environment programmes. This intends to reposition the built environment programmes to be competence-based and may promote the employability of the graduates. The study recommended feasible measures to integrate construction craft skills in Nigerian HEIs built environment programmes via the following recommendations:

(1) The study recommends collaboration with key stakeholders to integrate compulsory construction craft skills into the built environment programmes curriculum. The module/course should be taken for a minimum of three semesters and supported with practical sessions in collaboration with industry. The collaboration will enhance collaborative training, education activities and graduates' employability.

(2) The study suggests that the education sector needs human and physical infrastructural development. Thus, government HEIs regulatory agencies, the built environment professional bodies, regulatory agencies, HEIs, and relevant industry-based should invest in HEIs construction craft skills to promote graduate employability.

(3) The study suggests developing a sustainable and institutional framework for the proposed BEC in HEIs. The proposed framework should be all-inclusive and capture stakeholders' role. The government leading role, including critical funding and basic infrastructure provision, should be paramount in the proposed framework to avoid similar mishaps to previous government job creation initiatives.

(4) Also, apart from the proposed three semesters for teaching construction craft skills in the proposed curriculum review, one-year NYSC scheme should be utilised to foster a

further practical experience of the acquired craft skills. The government should financially support fresh graduates who have acquired craft skills with basic working tools for those willing to continue the craft skills as a means of employment.

(5) Lecturers/instructors/technicians upskilling and reskilling in craftmanship skills is key to the sustainability of BEC in HEIs. Thus, HEIs administrators should create a platform for staff training in conjunction with support from the industry for practical exposure to students and academic staff.

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Appendix
Cover letter and semi-structured interview questions

Cover letter

Dear Participant,

Request for short virtual interview

Nigeria is among the top countries with the highest unemployed graduates in Africa. Currently, there is no comprehensible policy to address graduates' unemployability. Evidence shows that HEIs' craftmanship can enhance the built environment graduate's employability. The BEC in Nigeria's HEIs may have had some challenges. Studies about the perceived encumbrances facing the proposed BEC in Nigeria are scarce. Therefore, the paper's title is **The Built Environment Craftmanship in Higher Education Institutions: Issues and Prospects from Stakeholders Perception.** Specifically, the researchers' will achieve the stated aim through the following:

(1) To examine the relevance of BEC in Nigerian HEIs.

(2) To investigate the perceived encumbrances facing the proposed BEC in Nigerian HEIs.

(3) To suggest measures to integrate construction craft skills in Nigerian HEIs built environment programmes.

Kindly note that the virtual interview questions will be within the stated objectives. Responses provided by you will be collated and analysed together with that of other interviewees. It will make up the value and contribution to achieving the success of this work. Information provided will be treated with the greatest secrecy.

Hence, your valuable time and other answers to the questions will be highly cherished.

With regards.

Yours faithfully,

(Research Coordinator).

Basic questions for the participants

(1) Please, for record purposes, what is your organisation's name and state located?

(2) Please, what is your position in the organisation?

(3) Can you tell us your years of work experience?

(4) Please, are you knowledgeable regarding BEC?

(5) If yes to question 4, how can you describe the relevance of BEC to the built environment graduates' employability from your perception?

(6) As a stakeholder in the built environment sector, how can you evaluate the current BEC in HEIs?

(7) Do you think there are perceived barriers facing the proposed Nigeria's BEC in HEIs?

(8) If yes to question 7, what are the possible barriers?

(9) If no to Question 7, why do you think so?

(10) Please, what role can key stakeholders (government, professional bodies, government accreditation bodies, students, higher institutions, academia and the industry) play in integrating craft skills in Nigerian HELs built environment programmes?

(11) In summary, do you think industry collaboration can improve graduates' employability in the built environment and meet the industry's minimum standard?

(12) If yes to Question 11, how can the feat be achieved?

(13) If no to Question 11, why do you think so?

Source(s): Authors own work

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