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TVET GRADUATES' TRACER STUDY AND EMPLOYABILITY IN GHANA

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ABSTRACT

Purpose: This study examines the employment status and factors influencing TVET graduate employability.

Design/Methodology/Approach: A cross-sectional study was conducted. A 46-item structured questionnaire was randomly administered online to participants to collect data. A total of 374 responses were obtained from the survey. A descriptive and inferential model was adopted to analyse the empirical data.

Findings*:* This study revealed that 69.50% of TVET graduates had employment. Of these, 24.20% had permanent jobs, 39.20% were self-employed, and 36.60% had part-time or contract positions. The study also found that 58.50% of employed graduates worked in TVET organisations, while 41.5% worked in non-TVET-related organisations. The private sector was the primary employer of TVET graduates, while the government sector employed 29.60%.

Research Limitation: This study examined graduates of technical and vocational programmes at Kumasi Technical University from 2015 to 2021. The low response rate, however, may have impacted the inferences drawn from the survey data.

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Practical Implication: This study has implications for understanding the educational and employment experiences of graduates from technical universities in Ghana.
Social Implication: This study aims to help stakeholders at technical universities develop policies to address infrastructure and skills gaps that impact the employability of TVET graduates.
Originality/Value: This study used an inferential model to examine factors affecting graduates' employability and satisfaction levels in Ghana's higher technical and vocational education.

Keywords: *Employability. graduates. ordinal logistic regression. tracer study. tvet*

INTRODUCTION

Technical and Vocational Education Training (TVET) has emerged as one of the key strategies in both developed and developing nations to foster capacity building and enhance employment opportunities (Alagaraja & Arthur-Mensah, 2013; Chitema, 2021). Graduates of TVET programmes contribute to reducing unemployment, boosting local economies, and driving overall economic growth (Ngware et al., 2024). TVET equips individuals with essential skills, knowledge, and attitudes and prepares them to be self-reliant, competitive in the job market and capable of creating employment through entrepreneurship (Mathur et al., 2022). As a result, TVET graduates may be able to secure or create employment for themselves and others.

Graduate tracer study is used to trace and gather information about graduates of a specific programme from educational institutions to assess the outcomes and impacts of the programme on graduates' lives. Tracer studies are conducted after completing a university programme. Graduate tracer study has been used to gather data on employability, career paths, how well their programmes have prepared them for the labour market, and identify areas where improvements may be needed (Rojas & Rojas, 2016).

The employment profile of graduates is one of the criteria used in higher education to assess the curricular performance of a programme on graduates' professional development (Tran, 2018; Alvarez, 2020; Sagarino et al., 2017) and must be disclosed by the educational institutions as accountability and effect demonstration metrics (Dewi et al., 2021). Continuous professional development also allows TVET graduates to remain competitive in their career paths and the labour market. The need to get feedback from the graduates who have completed higher education is crucial for institutional development, especially with a core mandate to train TVET students. Tracer studies offer higher education institutions the opportunity to harvest genuine feedback from their graduates across different subjects, especially those from TVET institutions.

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The study employed ordinal logistic regression (hereafter, OLR), an advanced statistical technique, to investigate graduates' job market experiences and programme studies. OLR is well-suited for analysing ordered responses, such as satisfaction levels. It provides insights into how participant attributes and factors influence ranked outcomes. This analytical approach has wide-ranging applications beyond education in healthcare, marketing and social sciences. OLR offers a better understanding of how independent variables affect responses while adhering to the proportional odds assumption.

Kumasi Technical University provides higher training in technical and vocational education. At Kumasi Technical University, the TVET programmes include Construction/Building Technology, Interior Design and Materials Technology, Hotel, Catering and Institutional Management/ Tourism and Hospitality, Fashion Design/Textile Studies and Engineering Technology.

This study examines the employment status and the factors that influence KsTU TVET graduate employability and overall satisfaction in laboratory and workshop facilities at Kumasi Technical University, focusing on those who completed their studies from 2015-2021. It recommends improving TVET programmes' effectiveness to enhance graduates' employability and foster stronger linkages between TVET institutions and the labour market.

LITERATURE REVIEW

Technical and Vocational Education and Training is crucial for addressing skills gaps and improving job prospects. In Ghana, TVET institutions, including Kumasi Technical University, play a vital role in equipping graduates with relevant industry skills. Understanding the employment outcomes of these graduates is key to evaluating the effectiveness of TVET programmes and informing policy choices. This review examines existing research on TVET graduates' tracer studies and employability, focusing on the Ghanaian context and insights applicable to Kumasi Technical University.

TVET and Employability in Ghana

Technical and vocational education and training programmes aim to bridge the gap between education and the job market. They provide practical skills and technical know-how. According to Akyeampong (2010), Ghana's TVET system aims to address youth unemployment by equipping students with entrepreneurial and job-specific abilities. However, challenges such as limited funding, curriculum not matching industry needs, and societal perceptions of TVET remain.

Nsiah-Gyabaah (2009) notes that technical and vocational education and training institutions often have difficulty maintaining modern training equipment, which impacts graduates' job prospects.

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Despite these challenges, technical universities like KsTU keep improving their programmes and building partnerships with industry to enhance graduate outcomes.

Tracer Studies: An Overview

Tracer studies are a key method for assessing the relevance and effectiveness of education programmes by tracking graduates' career paths, employment status, and feedback on their training. Kritzinger et al. (2008) emphasise that tracer studies provide valuable data on how education systems align with labour market demands.

In the Ghanaian context, studies by Boateng and Ofori-Sarpong (2002) revealed that TVET graduates face mixed employment outcomes, often influenced by the mismatch between skills taught and labour market requirements. Similarly, Ankomah and Amoako (2020) found that TVET graduates' employability is significantly linked to the quality of industry-based training they receive during their studies.

Tracer Studies on TVET Graduates in Ghana

Research specific to TVET graduates in Ghana reveals both opportunities and challenges. A study by Arkorful and Abaidoo (2019) highlighted that TVET graduates who undergo internships or industrial attachments during their studies tend to have better employment outcomes. This finding underscores the importance of practical training components in TVET curricula.

Recent tracer studies at Kumasi Technical University have revealed that many graduates secure employment in technical fields such as engineering, construction, and information technology. However, others struggle due to limited job opportunities in their specialisation or lack of entrepreneurial skills. Ampadu et al. (2021) recommend enhancing soft skills and entrepreneurship training to improve employability outcomes for KsTU graduates.

Employability and Labour Market Integration

Employability refers to graduates' ability to secure and sustain employment, often determined by their skills, qualifications, and adaptability. Yorke (2006) identifies key employability factors, including technical competencies, communication skills, and work experience. In the Ghanaian context, TVET graduates often face barriers such as inadequate access to job placement services and stigma against vocational education (Dadzie, 2013).

A study by Mensah and Agyeman (2017) focusing on Kumasi Technical University revealed that while most graduates possess strong technical skills, they require additional support in areas like career counselling, networking, and entrepreneurship to maximise their employability.

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The Role of Entrepreneurship Training

Entrepreneurship training is increasingly recognised as a critical component of TVET programmes. In their study, Amankwah and Oppong (2018) found that entrepreneurial skills significantly enhance the employability of TVET graduates, enabling them to create their businesses and reduce dependence on formal employment. At Kumasi Technical University, efforts to integrate entrepreneurship into the curriculum have yielded positive results, with many graduates pursuing self-employment opportunities.

Aligning TVET programmes with labour market needs is crucial for improving graduate employability. Tracer studies provide valuable insights for guiding curriculum and policy at Kumasi Technical University, where practical training, entrepreneurship, and industry engagement are key to better graduate outcomes. Further research is needed on long-term employability trends and the impact of curriculum reforms.

MATERIALS AND METHODS

Study design

This cross-sectional study was conducted from April to June 2023 as part of a broader collaboration between departments across four academic faculties at Kumasi Technical University: the Faculty of Applied Sciences and Technology (hereafter, FAST), the Faculty of Engineering and Technology (hereafter, FET), the Faculty of Creative Arts and Technology (hereafter, FCAT), and the Faculty of Built and Natural Environment (hereafter, FBNE).

Study population and sampling

The study population consisted of 4,431 graduates who completed their studies at Kumasi Technical University between 2015 and 2021, drawn from four distinct faculties. The sampling frame included graduates from ten departments with the four faculties: Hotel, Catering, and Institutional Management (hereafter, HCIM); Civil Engineering; Chemical Engineering; Electrical/Electronic Engineering; Mechanical Engineering (hereafter, Engineering); Fashion Design and Textiles Studies (hereafter, Fashion/Textile); Building Technology; Construction Technician Course (hereafter, Construction); and Interior Design and Materials Technology (hereafter, Interior Design).

The participants were graduates from ten departments across four faculties. The graduates from each faculty's departments were homogeneous within their respective faculties but heterogeneous across the faculties in the programmes they studied. To participate in the study, the following inclusion criteria were applied: a graduate with a Non-Tertiary Diploma, HND, or BTech degree

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from any department within the four faculties and having graduated between 2015 and 2021. The sample size was 374 graduates.

Data collection tools

A 46-item structured questionnaire was randomly administered online to participants to collect data. Since in-person data collection was not feasible, an online survey was used. The questionnaire included multiple-choice and ranking questions; it was developed in English, the language of instruction at all educational levels in Ghana. The questionnaire aimed to explore the satisfaction levels of participants, primarily graduates from the four faculties at Kumasi Technical University, between 2015 and 2021.

The survey instrument recorded high reliability, with a Cronbach's alpha of 0.78, indicating strong internal consistency among the items. Validation involved expert review and a pilot test, ensuring the questions were clear, relevant, and aligned with the study's objectives. This process confirmed that the instrument accurately measured the intended variables.

The study period was divided into two phases, from 2015 to 2019 and from 2020 to 2021, to capture employment trends over the two segmented years, particularly before COVID-19 and during the COVID-19 era.

Data collection

According to the estimated sample size for each faculty, data was collected using an online tool called Google Forms. This made it easier for all participants to complete the tracer study questionnaire seamlessly. The research team was able to track the number of responses throughout the study period. Per the survey instructions, participants' consent and ethical considerations were addressed before completing the online survey. No personal identifiers were collected from participants at any point during the study.

Data analysis

Variables

The study used both descriptive and inferential approaches to analyse the empirical data. The descriptive analysis focused on graduates' personal information, including gender, age, marital status, religion, secondary education, field of study, and graduation year. In addition, the study examined graduates' satisfaction with the TVET laboratory and workshop infrastructure at KsTU across the four faculties. Using the ordinal logistic model, the researchers evaluated the association between the dependent variable of graduates' satisfaction and the independent variables of graduates' field of study, employment status and qualification.

Statistical analysis

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Incomplete or invalid questionnaire responses were excluded from the analysis. Demographic information was summarised using descriptive statistics. An ordinal logistic regression model was employed to assess the association between graduates' satisfaction with TVET infrastructure at KsTU and participant characteristics, such as field of study, employment status, and qualification. Responses with missing dependent variable data were excluded from the analysis. Data analysis was conducted using R statistical software (version 4.3.2).

Ordinal logistic regression model

An OLR model evaluates the relationship between an ordinal dependent variable and one or more independent variables. In this study, the model assesses the association between graduates' satisfaction (ordinal outcome) with TVET infrastructure and characteristics such as field of study and qualification.

The cumulative logit model for ordinal outcomes is expressed as:

$$log\left(\frac{P(Y \leq j)}{P(Y>j)}\right) = \alpha_j + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots + + \beta_k X_k,$$

Where:

Y is the ordinal dependent variable (e.g., satisfaction levels)

j represents the threshold for the ordinal categories

α_j are the intercepts (thresholds for different categories).

$\beta_1, \beta_2, \beta_3, \ldots \beta_k$ are the coefficients for the independent variables X (i.e., field of study, qualification)

This indicates the odds of being in a higher satisfaction category for a one-unit change in the independent variable is given by

$$OR = e^{\beta_i}$$

Model Diagnoses Test

The model diagnosis involves three key tests: the Nagelkerke test, the Lipsitz goodness-of-fit test, and the Brant Wald test. These diagnostic tests are crucial in model building, assessing whether the data adequately fits the model and meets its underlying assumptions.

a. Nagelkerke R^2:

The Nagelkerke R^2 is an extension of the Cox-Snell R^2 that adjusts that Cox-Snell R^2 cannot reach 1 in logistic regression models. It provides a standardised measure of the proportion of variance explained by the model, with values ranging from 0 to 1, where higher values indicate better model fit.

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$$R^2_{\text{Nagelkerke}} = \frac{R^2_{\text{Cox-Snell}}}{1-\frac{\log L_{\text{null}}}{n}},$$

where:
n is the sample size, $\log L_{null}$ is the log-likelihood of the null model, and $R^2_{Cox-Snell}$ is the unadjusted proportion of variance explained.

b. Lipsitz Goodness-of-Fit Test:

The Loipsitz goodness-of-fit test evaluates the overall fit of an ordinal logistic regression model. It compares the model's predicted values to the observed data to determine if there is a significant discrepancy. A p-value (> 0.05) suggests that the model fits the data well. The test statistic is the likelihood ratio (LR), which is compared to a chi-square distribution to calculate the Loipsitz goodness-of-fit test.

$$LR = 2 \times (\log L_{null} - \log L_{model}),$$

where L_{null} is the log-likelihood of the null model, and L_{model} Log-likelihood of the fitted model.

c. Brant Wald Test:

The Brant-Wald test assesses the proportional odds assumption in ordinal logistic regression. It determines if the relationship between predictors and the outcome variable is consistent across all outcome levels. The test compares each independent variable to assess if its effect on the log odds of a higher outcome is proportional across the outcome levels. The Brant Wald test is estimated using the metric below:

$$X^2 = \sum\left(\frac{(Observed-Expected)^2}{Expected}\right),$$

where:
Observed denotes the observed values or frequencies in the data for each level of the ordinal dependent variable based on the actual data points
Expected represents the expected values or frequencies, assuming the proportional odds assumption holds true.
A significant p-value (< 0.05) for an independent variable indicates a violation of the proportional odds assumption for that variable. Results are reported for each independent variable individually and for the model (Omnibus test).

RESULTS AND DISCUSSION

Descriptive statistics

The survey obtained 374 responses, yielding an impressive response rate of 99.73%. For a population of 10,000, a sample size 370 is required to achieve a 95% confidence level (Miaoulis & Michener, 1976). With a population of 4,431 and 374 responses, the sample

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is representative of the population, as it exceeds the recommended size for reliable estimates at a 95% confidence level.

Most participants were female, accounting for 65.78% of the sample size (n=374). A substantial portion of the participants, 35.56%, were aged between 20 and 24.

In terms of marital status, the majority of the participants were single, representing 79.95% of the total sample. Regarding religious affiliation, 87.77% of the participants identified as Christians, making Christianity the predominant religion among participants.

Regarding educational background, a significant percentage of participants (68.98%) had completed TVET school. Additionally, nearly half of the participants (49.73%) pursued studies in Fashion/Textiles. The largest cohort in the survey was the 2020-2021 graduates, comprising 68.18% of the participants. These demographics provide the sample composition and understanding of the studied participants.

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Table 1: Descriptive statistics

QUESTION	FREQUENCY	PERCENTAGE (%)
Gender (Participants = 374)		
Male	128	34.22
Female	246	65.78
Age (Participants = 374)		
Below 20	25	6.68
20-24	133	35.56
25-29	104	27.81
30-34	54	14.44
35-39	28	7.49
40 and above	30	8.02
Marital Status (Participants = 374)		
Single	299	79.95
Married	71	18.98
Divorced	3	0.80
Other	1	0.27
Religion (Participants = 374)		
Christianity	329	87.97
Islam	40	10.70
Traditional	3	0.80
Others	2	0.53
Secondary Education (Participants = 374)		
TVET	258	68.98
Non-TVET	116	31.02
Programme of Study (Participants = 374)		
Building Technology/Construction	43	11.50
Engineering Technology	22	5.88
Fashion/Textile	186	49.73
Hotel, Catering and Institutional Management	116	31.02
Interior Design	7	1.87
Year of Graduation (Participants = 374)		
2015-2019	119	31.82
2020-2021	255	68.18

Note: This table presents the descriptive statistics

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Table 1: Descriptive statistics cont'd

QUESTION	FREQUENCY	PERCENTAGE (%)
Employment Status (Participants = 374)		
Employed	260	69.52
Unemployed	114	30.48
Qualification With Sufficient Training And Education (Participants = 374)		
Advanced	94	25.13
HND	169	45.19
BTech	111	29.68
Employment Type (Participants = 260)		
Permanent	63	24.23
Contract	18	6.92
Part-Time	63	24.23
Self Employed	116	44.62
Tvet Related Employment (Participants = 260)		
Yes	218	58.29
No	156	41.71
Source Of Employment (Participants = 260)		
Government	68	26.15
Private	142	54.62
Other	50	19.23
Employment Mismatch (Participants = 108)		
Lost of interest in TVET	4	3.70
Non competitive salary	5	4.63
Limited career progressing paths	6	5.56
Lack of funds for a startup	36	33.33
Lack of opportunities	33	30.56
Other	24	22.22
Industry Employment (Participants = 260)		
Building/Construction	30	11.54
Engineering	15	5.77
Fashion/Textile	129	49.62
Hospitality/Tourism	81	31.15

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Interior Design	5	1.92

Note: This table presents the descriptive statistics

Of 374 participants, 69.52% were employed (n=260), while 30.48% were unemployed (n=114). The employment statistics are encouraging, as two-thirds of the participants were gainfully employed.

Among the employed participants (n=260), 44.62% were self-employed, 24.23% held permanent and part-time positions, and 6.92% were on contract. Regarding employment related to TVET, 58.29% of the employed worked in TVET-related roles, while 41.71% did not. The high percentage of employed participants who could not get TVET-related roles may be due to a lack of industry opportunities. The results indicate that most participants held HND (45.19%) and BTech (29.68%) qualifications, while 25.13% had non-tertiary qualifications. This suggests that many participants may have been compelled to seek employment across various industries, potentially due to limitations in funding for their entrepreneurial ventures.

The participants' employment source was the private sector (54.62%), government jobs (26.15%), and other sectors for 19.23%. The results re-emphasise the need for the government to develop innovative modules to empower the private sector to expand and employ more graduates from the technical universities in Ghana. This approach would reduce graduate unemployment, reduce employment mismatch and create more fiscal space for the government to operate. Of the 108 participants experiencing employment mismatch, 33.33% cited a lack of startup funds, 30.56% mentioned a lack of opportunities, and 22.22% listed other reasons. In industry employment, the majority were in the Fashion/Textile sector (49.62%), followed by HCIM (31.15%), Construction (11.54%), and Engineering (5.77%). Only 1.92% were employed in Interior Design industry.

Inferential statistics

Ordinal logistic regression model

Table 2 presents the empirical results of the ordinal logistic regression analysis (i.e., model estimates, p-value and odds ratio). The four independent variables examined were year of graduation, field of study, employment status, and qualification level. The ordinal logistic regression analysis found three independent variables statistically significant at the 95% confidence level. Specifically, the Fashion field of study, the HND qualification level, and the self-employed employment status were the only significant predictors of the ordinal dependent variable.

From Table 2, participants who studied Fashion at Kumasi Technical University were significantly more likely to rate their satisfaction with laboratory and workshop infrastructure positively. Specifically, they were 124% more likely to give higher ratings than participants in the

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construction industry. This difference suggests that Fashion graduates may have had better access to resources that met their practical needs. The disparity in ratings could be due to the infrastructure being more suitable for fashion-related activities, which may have enabled more hands-on learning in that field. In contrast, graduates from other fields may have faced challenges or gaps in the available infrastructure, which affected their educational experience. These findings highlight the need to investigate further how the university's facilities cater to the varying needs of different technical and vocational disciplines. The study highlights varying laboratory and workshop needs across TVET programmes, resulting in unequal access to state-of-the-art facilities for hands-on training. These disparities may create a mismatch between the skills taught and labour market demands (Boateng & Ofori-Sarpong, 2002).

Similarly, the study found that self-employed graduates were about 176% more likely to rate their satisfaction with laboratory and workshop facilities at Kumasi Technical University than contract employees. This suggests that self-employed individuals have a more positive view of these facilities' quality, relevance, and usefulness. One possible explanation is that self-employed graduates, who often rely on the practical skills gained during their education to run their businesses, find the hands-on experience and training offered by the TVET infrastructure highly beneficial. The tools and workshops they used likely contributed to their entrepreneurial success, leading to a more positive evaluation of the facilities. According to research by Nsiah-Gyabaah (2009), TVET institutions often struggle to maintain modern training equipment, which affects graduates' job prospects. The author linked the availability of modern training equipment to graduates' employment opportunities. The high ratings by self-employed graduates regarding their satisfaction with the quality of laboratory and workshop facilities for hands-on training helped them develop the necessary skills and competencies for industry growth, making them more employable.

In contrast, graduates in traditional employment roles may not depend as much on the TVET laboratories and workshops in their current jobs. These individuals may work in sectors where theoretical knowledge or other forms of professional training are more important than the practical skills learned in a technical setting, resulting in a less favourable perception of the usefulness and quality of the TVET infrastructure, especially when there is role mismatch. This divergence in views highlights the importance of considering how career paths shape graduates' attitudes toward educational resources and facilities.

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Table 2: Ordinal logistic regression model

Model	Estimate	p_value	OR
Year of Graduation (**2020 - 2021**)	-0.1301	0.5976	0.8780
Programme of Study (**Engineering**)	0.0982	0.8478	1.1032
Field of Study (**Fashion/Textiles**)	0.8074*****	0.0243	2.2421
Field of Study (**HCIM**)	0.7212	0.0577	2.0570
Field of Study (**Interior Design**)	0.5466	0.4813	1.7274
Employment Status (**Part-Time**)	0.3104	0.5513	1.3639
Employment Status (**Permanent Staff**)	0.8161	0.1005	2.2616
Employment Status (**Self-Employment**)	1.0169*****	0.0395	2.7646
Employment Status (**Unemployed**)	0.7863	0.1120	2.1953
Qualification (**BTech**)	0.1534	0.5679	1.1658
Qualification (**HND**)	-0.7319******	0.0072	0.4810
Intercept			
Very Dissatisfaction|Dissatisfied	-2.2363	0.0001	0.1069
Dissatisfied|Neutral	-0.9463	0.0779	0.3882
Neutral|Satisfied	0.6345	0.2344	1.8861
Satisfied|Very satisfied	2.3242	0.0000	10.2182
Satisfied|Very satisfied	2.3242	0.0000	10.2182

Note: **(*) denote p-values below 1% (5%).
Year of Graduation [**Reference:** 2015-2019]
Field of Study [**Reference:** Construction]
Employment Status [**Reference:** Contract]
Qualification [**Reference:** Non-Tertiary Diploma]

Lastly, HND graduates are significantly less likely to provide a favourable evaluation of the laboratory and workshop facilities at Kumasi Technical University compared to non-tertiary Diplomas. Specifically, they are approximately 51.95% less likely to rate these facilities highly. This difference in perceptions may stem from variations in their exposure to or expectations of the practical learning environments at the university, which could be shaped by the structure and content of their respective programmes.

The lower ratings from HND graduates may indicate that the infrastructure does not adequately meet the demands of their technical training or career expectations. It is possible that their practical experiences in the laboratories and workshops were less enriching or effective than those of non-tertiary Diplomas students. These findings suggest the need for further investigation into how different groups of students experience and perceive the university's technical and vocational facilities and potential improvements to enhance satisfaction across all qualification levels.

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The findings of this study align with the research by Nsiah-Gyabaah (2009), who identified the challenges that TVET institutions face in keeping their training equipment up-to-date. This issue impacts graduates' job prospects and subsequently affects their satisfaction levels. The difficulty of maintaining training equipment in TVET institutions may have particularly impacted the experiences of HND graduates, contributing to the lower ratings of their technical training during their university studies.

Model diagnosis Tests:

Table 3 presents three different diagnostic tests. The Nagelkerke R^2 shows a p-value of 0.0822, indicating a low model fit, which suggests that the model explains approximately 8.22% of the total variance in the dependent variable. To improve the model's performance, additional independent variables could be explored.

Next, the Lipsitz Goodness-of-Fit test evaluated the overall fit of the ordinal logistic regression model. Since the p-value is higher than 0.05, we fail to reject the null hypothesis, suggesting that the model demonstrates an acceptable fit to the data.

Table 3: Ordinal logistic model diagnosis tests

Pseudo R^2			
Nagelkerke:			
0.0822			
Lipsitz Goodness of Fit Test:			
LR Statistics	DF	p-value	
3.1014	9	0.9601	
Brant Wald Test:			
	X^2	**DF**	**Probability**
Omnibus	-166.47	33	1
Year of Graduation (**2020 - 2021**)	2.84	3	0.42
Programme of Study (**Engineering**)	1.09	3	0.78
Field of Study (**Fashion/Textiles**)	7.96	3	0.05
Field of Study (**HCIM**)	7.38	3	0.06
Field of Study (**Interior Design**)	13.83	3	0.00
Employment Status (**Part-Time**)	0.92	3	0.82
Employment Status (**Permanent Staff**)	2.2	3	0.53
Employment Status (**Self-Employment**)	0.19	3	0.98
Employment Status (**Unemployed**)	0.82	3	0.85
Qualification (**BTech**)	0.25	3	0.97

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Qualification (**HND**)	6.13	3	0.11

Note: This table presents the results of the Brant Wald test.

The model appears to be appropriate for the data. The p-value of the Brand Wald test, also known as the Omnibus test, suggests that the overall model meets the proportional odds assumption. However, two levels under the independent variable (Field of Study-Fashion/Textile and Interior Design) showed violations, while all other variables were significant with p-values greater than 0.05. The diagnostic analysis suggests the model fits the data well, although the independent variables only explain a small portion of the variability in the dependent variable.

CONCLUSION

This study examines the employment status and the various factors that influence graduate employability and overall satisfaction with laboratory and workshop facilities at Kumasi Technical University, focusing on those who have completed their studies from 2015-2021.

We present highlights of key empirical results. The study found that.

- **a.** 69.50% of graduates were gainfully employed. Of these, 24.20% secured permanent employment, 39.20% were self-employed, and 36.60% were in part-time or contract positions.
- **b.** 58.50% of the employed graduates worked in TVET organisations, while 41.5% were employed in non-TVET-related organisations.
- **c.** The private sector (70.40%) emerged as the primary employer of TVET graduates, while the government sector employed 29.60% of them.
- **d.** Fashion/Textile graduates were approximately 124% more likely to rate their satisfaction with laboratory and workshop infrastructure at Kumasi Technical University high than graduates who studied construction-related programmes.
- **e.** self-employed graduates were approximately 176% more likely to rate their satisfaction with laboratory and workshop facilities at Kumasi Technical University than graduates engaged in contract employment.
- **f.** HND graduates are approximately 51.95% less likely to rate their satisfaction with laboratory and workshop infrastructure at Kumasi Technical University than graduates who studied non-tertiary diploma programmes.

Based on the ordinal logistic regression analysis, the following recommendations are proposed for stakeholders in higher TVET institutions and government policymakers. Enhancing the laboratory and workshop infrastructure for HND-related TVET programmes could improve students' hands-on training experience. Providing state-of-the-art equipment would modernise these facilities and enhance teaching and learning outcomes. With cutting-edge facilities, students can acquire the practical skills and knowledge needed to thrive in today's competitive job market and better

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prepare for successful careers that meet industry demands. Additionally, there is a need for the government to implement innovative intervention programs that bolster the private sector, allowing it to grow and employ more graduates from Ghana's technical universities. This approach would help decrease graduate unemployment, tackle employment mismatches and enhance the government's fiscal flexibility.

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