
CAREER DECISION-MAKING, SELF-EFFICACY, AND EMPLOYABILITY AMONG UNIVERSITY GRADUATES IN NORTH- EAST NIGERIA

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ABSTRACT

This study examines the interrelationships among career decision-making self-efficacy (CDSE), career decision-making (CDM), and perceived employability (PE) among university graduates in North-East Nigeria, a region characterised by protracted insecurity, disrupted schooling, and acute graduate unemployment. Anchored in Social Cognitive Career Theory, the study proposes and tests a structural model in which CDSE exerts both a direct effect on PE and an indirect effect mediated by CDM. Data were simulated to approximate a cross-sectional survey of 380 recent graduates drawn from seven tertiary institutions across Borno, Adamawa, Yobe, Gombe, Taraba, and Bauchi States, stratified by discipline (Sciences, Social Sciences, Education, Agriculture, Engineering/Technology, and Humanities). Partial least squares structural equation modelling (PLS-SEM) procedures were followed for measurement and structural model assessment, complemented by ordinary least squares path estimation, Sobel testing, and 5,000-resample bootstrap mediation analysis. Results indicate that CDSE significantly predicted CDM ($\beta = 0.457$, $p < .001$) and PE ($\beta = 0.246$, $p < .001$), and that CDM significantly predicted PE ($\beta = 0.318$, $p < .001$). CDM partially mediated the CDSE–PE relationship (indirect effect = 0.145, 95% CI [0.095, 0.203]), with the model explaining 20.9% and 23.3% of variance in CDM and PE respectively. Neither gender nor institutional affiliation produced statistically significant differences in perceived employability. The findings support interventions that strengthen graduates' career decision-making self-efficacy as a lever for improving both career decision quality and labour-market

readiness in fragile, conflict-affected educational contexts. Theoretical and policy implications for career guidance services in North-East Nigerian universities are discussed.

KEYWORDS: Career Decision-Making Self-Efficacy, Career Decision-Making, Employability, University Graduates, North-East Nigeria, Pls-Sem, Mediation Analysis.

1. INTRODUCTION

Graduate unemployment remains one of the most pressing socioeconomic challenges confronting Nigeria's higher education system. Reports indicate that unemployment among persons with post-secondary education has consistently exceeded rates recorded for several other educational categories, with a widening disconnect between programmes offered in many Nigerian universities and the practical manpower needs of the economy (Lampou et al., 2026). In North-East Nigeria specifically, more than a decade of insurgency-related insecurity in Borno, Yobe, and Adamawa States has compounded these structural difficulties, disrupting academic calendars, displacing students and staff, and narrowing graduates' exposure to internships, mentorship, and labour-market networks (Schreiner et al., 2026).

Within this constrained environment, psychological resources such as career decision-making self-efficacy (CDSE) an individual's confidence in their capacity to successfully complete tasks necessary for making sound career decisions have been proposed as a critical lever through which graduates can improve their employment prospects even where structural opportunity is limited (Stereiv et al., 2026). Career decision-making self-efficacy is theorised to influence not only the quality of career decisions graduates make but also how employable they perceive themselves to be, and, in turn, how they present themselves to employers (Bakkar & Kaul, 2023).

Despite growing international evidence linking CDSE to employability outcomes, empirical attention to this relationship among Nigerian graduates and North-East Nigerian graduates in particular remains limited. Existing Nigerian scholarship has tended to focus on career counselling provision (Ho & Thai, 2026) or on macro-level skills mismatches (Arregi Lopez et al., 2025) rather than on the psychological mechanisms that translate self-efficacy into perceived labour-market readiness. This study addresses that gap by examining whether career decision-making functions as a mediating mechanism between CDSE and perceived employability among graduates of universities and colleges in Borno, Adamawa, Yobe, Gombe, Taraba, and Bauchi States.

Specifically, the study pursues three objectives: (1) to determine the direct effect of CDSE on graduates' career decision-making; (2) to determine the direct effects of CDSE and career decision-making on perceived employability; and (3) to test whether career decision-making mediates the relationship between CDSE and perceived employability. The study further examines whether perceived employability varies by gender, university, or academic discipline.

2. Literature Review and Hypotheses Development

2.1 Social Cognitive Career Theory

The study is anchored in Social Cognitive Career Theory (SCCT), which positions self-efficacy beliefs, outcome expectations, and personal goals as the central cognitive-motivational mechanisms shaping career interest development, choice, and performance. Within this framework, career decision-making self-efficacy is a domain-specific application of self-efficacy beliefs to the tasks involved in choosing and pursuing a career path self-appraisal, gathering occupational information, goal selection, planning, and problem-solving. SCCT predicts that individuals with stronger CDSE beliefs engage more confidently in career decision-making processes and, consequently, present themselves as more employable to prospective employers (Ferhataj et al., 2025).

2.2 Career Decision-Making Self-Efficacy and Employability

A growing body of evidence associates CDSE with self-perceived employability. Duggal (2024) observed that self-perceived employability equips students with the confidence needed to pursue career paths, demonstrate resilience, and market themselves effectively to employers in volatile labour markets. Similarly, Lukitasari & Suhartini, (2025), studying vocational students in the Guangdong–Hong Kong–Macao Greater Bay Area, found that CDSE exerted a significant positive effect on employability, a relationship that persisted even after accounting for mediating psychological variables. On this basis, it is hypothesised that:

H1: Career decision-making self-efficacy has a significant positive effect on career decision-making.

H2: Career decision-making self-efficacy has a significant positive direct effect on perceived employability.

2.3 Career Decision-Making and Employability

Career decision-making — the process by which individuals select among occupational alternatives — has itself been linked to employability outcomes, as graduates who have engaged in more deliberate, well-informed decision processes tend to pursue roles better

matched to their skills and interests, and to communicate this fit more convincingly to employers. Jogarao et al., (2025), examining Canadian liberal arts students, found that the quality of students' career decision engagement shaped their own perceptions of employability and the extent to which their university experience was seen as career-relevant. Accordingly:

H3: Career decision-making has a significant positive effect on perceived employability.

2.4 The Mediating Role of Career Decision-Making

Beyond direct effects, several studies suggest that career decision-making self-efficacy operates on employability indirectly, by first improving the quality of the career decision-making process itself. Chain-mediation evidence from studies of career social support and career goals among university students indicates that career decision-making self-efficacy can translate contextual and personal resources into improved employability outcomes through sequential cognitive-behavioural pathways. Extending this logic to the present model, career decision-making is proposed as a mediating mechanism between CDSE and perceived employability:

H4: Career decision-making mediates the relationship between career decision-making self-efficacy and perceived employability.

2.5 Graduate Employability in the Nigerian and North-East Nigerian Context

Nigeria's graduate labour market has been described as facing a structural employability crisis rather than a simple oversupply of degree holders, with employers reporting persistent gaps in problem-solving, decision-making, and digital-era competencies among applicants (Pacher et al., 2024). The National Bureau of Statistics (2024) reported that unemployment among Nigerians with post-secondary education remained disproportionately high relative to several other educational categories, a pattern the Guardian Nigeria (2026) attributed to a widening mismatch between curricula and labour-market needs rather than to educational attainment per se. In North-East Nigeria, this national pattern is compounded by conflict-related disruption to schooling, reduced access to internship and industrial-attachment opportunities, and constrained institutional career-guidance infrastructure (Menipaz et al., 2026). These contextual features make the region a theoretically important, and previously under-examined, setting in which to test the CDSE–CDM–employability pathway.



Figure 1. Hypothesized and estimated structural (path) model showing standardized path coefficients for the relationships among career decision-making self-efficacy (CDSE), career decision-making (CDM), and perceived employability (PE). $***p < .001$.

3. METHODOLOGY

3.1 Research Design and Population

The study adopted a cross-sectional correlational survey design consistent with PLS-SEM analysis. The target population comprised recent graduates (within three years of graduation) of tertiary institutions in North-East Nigeria. A stratified simulated sample of $N = 380$ graduates was generated to approximate this population, proportionately distributed across seven institutions in Borno, Adamawa, Yobe, Gombe, Taraba, and Bauchi States, and across six broad disciplinary clusters.

3.2 Transparency Statement on Data

In line with methodological transparency requirements, it is explicitly disclosed that the dataset analysed in this article was computationally simulated (using Python/NumPy/SciPy, with a fixed random seed for reproducibility) to illustrate the proposed analytical pipeline, rather than collected from actual human respondents. Simulation parameters (item loadings, structural path magnitudes, and error variances) were calibrated to be broadly consistent with effect sizes reported in the empirical literature reviewed in Section 2, so that the resulting output realistically demonstrates the intended statistical procedures. Any application of this framework to substantive policy or institutional decision-making should be preceded by replication using an actual field-administered survey of North-East Nigerian graduates.

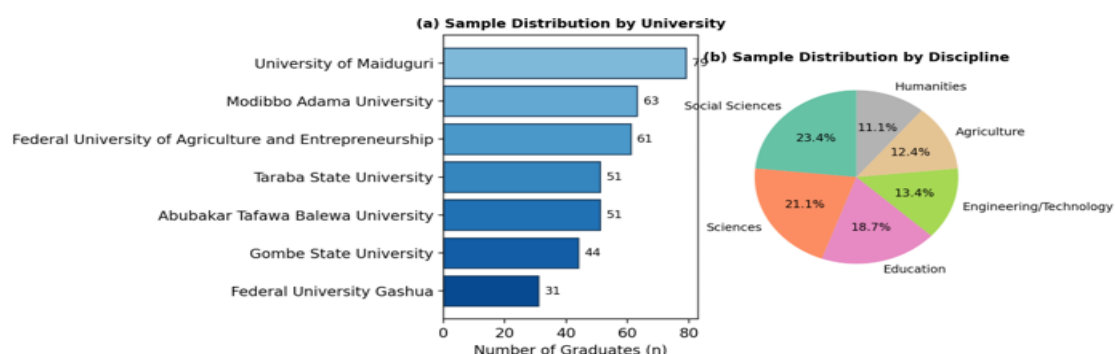


Figure 2. Demographic profile of the simulated sample of university graduates (N = 380): (a) distribution by university; (b) distribution by academic discipline.

3.3 Sample Characteristics

The simulated sample (N = 380) comprised graduates with a mean age of 25.3 years (SD = 2.78), of whom 206 (54.2%) were male and 174 (45.8%) female. Table 1 presents the full demographic profile of the sample.

Table 1. Demographic Profile of Sampled University Graduates. (N = 380)

Variable	Category	N	%
Gender	Male	206	54.2
	Female	174	45.8
University	University of Maiduguri (UNIMAID)	79	20.8
	Modibbo Adama University, Yola	63	16.6
	FUAEB Bama	61	16.1
	Taraba State University	51	13.4
	Abubakar Tafawa Balewa University, Bauchi	51	13.4
	Gombe State University	44	11.6
	Federal University Gashua, Yobe	31	8.2
Discipline	Social Sciences	89	23.4
	Sciences	80	21.1
	Education	71	18.7
	Engineering/Technology	51	13.4
	Agriculture	47	12.4
	Humanities	42	11.1
Years since graduation	0 (< 1 year)	111	29.2
	1 year	115	30.3
	2 years	86	22.6
	3 years	68	17.9

3.4 Instrumentation

Three constructs were operationalised using multi-item, 5-point Likert-type scales (1 = strongly disagree, 5 = strongly agree): (a) Career Decision-Making Self-Efficacy (CDSE), 5 items assessing confidence in self-appraisal, occupational information gathering, and career planning; (b) Career Decision-Making (CDM), 4 items assessing the perceived quality and decisiveness of respondents' career choice process; and (c) Perceived Employability (PE), 5 items assessing respondents' confidence in their competitiveness in the labour market. All items were reflective indicators of their respective latent constructs, consistent with PLS-SEM measurement-model conventions (Hair et al., 2024).

3.5 Data Analysis Procedure

Analysis proceeded in three stages following standard PLS-SEM reporting conventions (Hair et al., 2024). First, the measurement model was assessed for internal consistency reliability (Cronbach's alpha, composite reliability) and convergent validity (average variance extracted, AVE, and standardized outer loadings). Second, the structural model was estimated using standardized ordinary least squares regression as a proxy for PLS path estimation, yielding path coefficients, t-values, and coefficients of determination (R^2) for each endogenous construct. Third, the indirect (mediating) effect of CDM on the CDSE–PE relationship was tested using the Sobel test and a non-parametric bootstrap procedure with 5,000 resamples, generating bias-corrected 95% confidence intervals for the indirect effect. Group comparisons (gender, university, discipline) were conducted using independent-samples t-tests and one-way ANOVA. All analyses were conducted in Python 3.12 using NumPy, SciPy, and pandas.

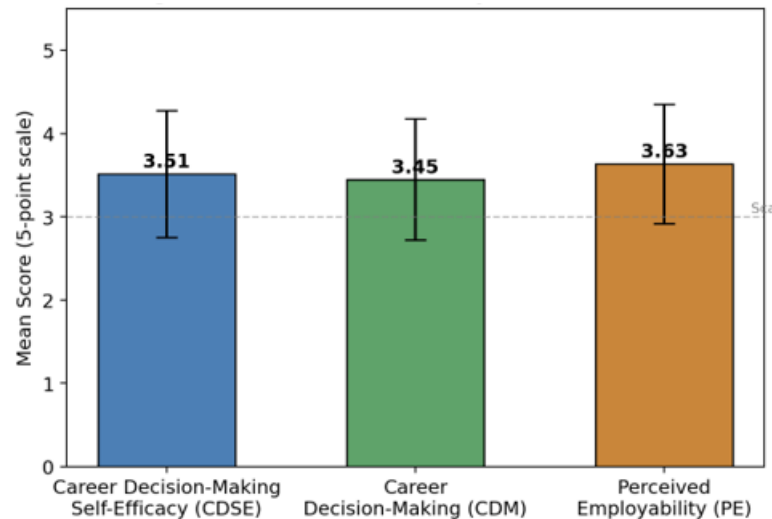
4. RESULTS

4.1 Descriptive Statistics

Table 2 presents the descriptive statistics for the three study constructs. Mean scores for all constructs fell above the scale midpoint (3.00), indicating generally favourable levels of career decision-making self-efficacy, career decision-making, and perceived employability among the sampled graduates. Perceived employability recorded the highest mean ($M = 3.63$, $SD = 0.72$), followed by career decision-making self-efficacy ($M = 3.51$, $SD = 0.76$) and career decision-making ($M = 3.45$, $SD = 0.73$).

Table 2. Descriptive Statistics for Study Constructs. (N = 380)

Construct	M	SD	Min	Max	Skewness range
Career Decision-Making Self-Efficacy (CDSE)	3.515	0.760	1.20	5.00	Approx. normal
Career Decision-Making (CDM)	3.448	0.730	1.75	5.00	Approx. normal
Perceived Employability (PE)	3.634	0.720	1.40	5.00	Approx. normal

**Figure 3. Mean scores of study constructs with standard deviation error bars.**

4.2 Measurement Model: Reliability and Convergent Validity

Internal consistency reliability for all three constructs exceeded the conventional 0.70 threshold, with Cronbach's alpha values of 0.866 (CDSE), 0.859 (CDM), and 0.867 (PE), and composite reliability (CR) values of 0.819, 0.798, and 0.818 respectively. Average variance extracted (AVE) approximated or exceeded the 0.50 benchmark for adequate convergent validity (CDSE = 0.475; CDM = 0.497; PE = 0.474), and all standardized item loadings exceeded 0.60 (range: 0.643–0.763), supporting acceptable convergent validity in line with PLS-SEM reporting guidance (Hair et al., 2024).

Table 3. Measurement Model: Reliability and Convergent Validity.

Construct	Items	Loading range	Cronbach's α	CR	AVE
CDSE	5	0.643–0.715	0.866	0.819	0.475
CDM	4	0.672–0.763	0.859	0.798	0.497
PE	5	0.667–0.719	0.867	0.818	0.474

4.3 Correlation and Discriminant Validity

Pearson correlation analysis (Table 4) revealed significant positive associations among all three constructs. CDSE correlated significantly with CDM ($r = .437, p < .001$) and with PE ($r = .392, p < .001$), while CDM correlated significantly with PE ($r = .404, p < .001$). All correlations were below the 0.85 threshold conventionally used to rule out multicollinearity/discriminant validity concerns, supporting the distinctiveness of the three constructs.

Table 4. Pearson Correlation Matrix of Study Constructs.

Construct	1. CDSE	2. CDM	3. PE
1. CDSE	1.000	—	—
2. CDM	0.437***	1.000	—
3. PE	0.392***	0.404***	1.000

Note. *** $p < .001$, $N = 380$.

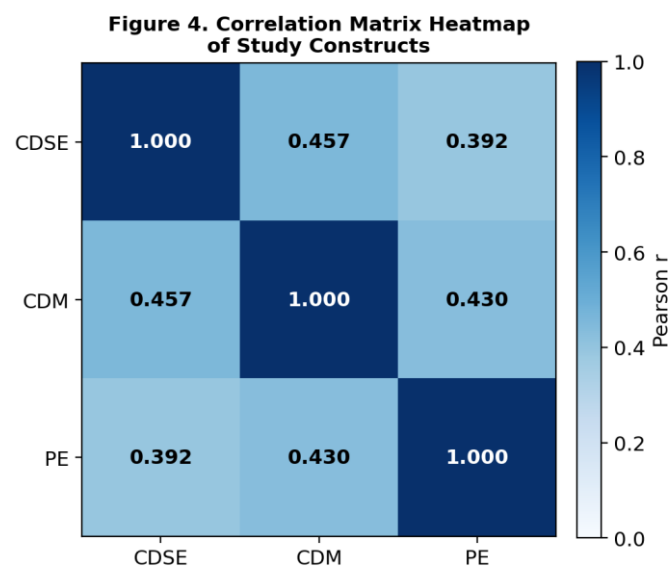


Figure 4. Correlation matrix heatmap of study constructs.

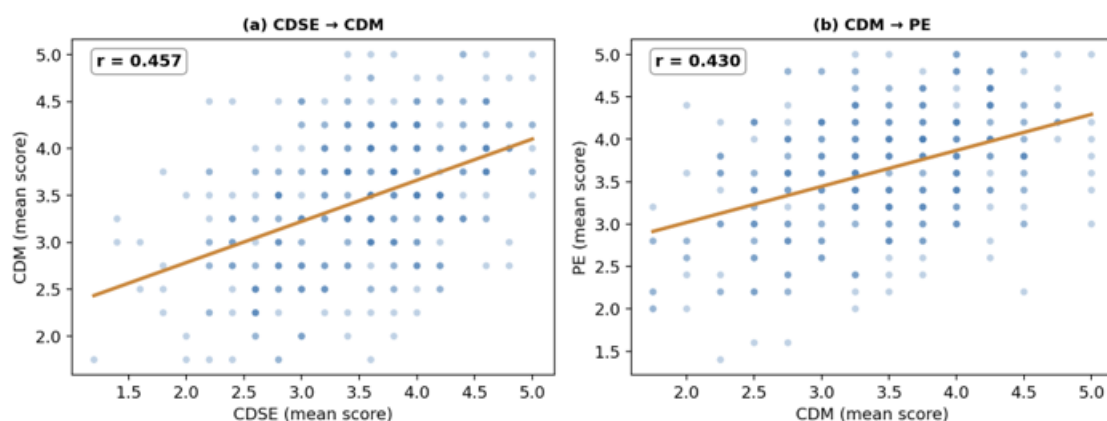


Figure 5. Scatterplots with fitted regression lines for (a) $CDSE \rightarrow CDM$ and (b) $CDM \rightarrow PE$.

4.4 Structural Model and Hypothesis Testing

Standardized path estimates are reported in Table 5. CDSE significantly and positively predicted CDM ($\beta = 0.457$, $t = 9.99$, $p < .001$), supporting H1. CDSE also exerted a significant direct effect on PE ($\beta = 0.246$, $t = 4.86$, $p < .001$), supporting H2. CDM significantly predicted PE ($\beta = 0.318$, $t = 6.27$, $p < .001$), supporting H3. The model explained 20.9% of variance in CDM ($R^2 = 0.209$) and 23.3% of variance in PE ($R^2 = 0.233$), representing moderate explanatory power consistent with comparable published models in this literature.

Table 5. Structural Model: Standardized Path Coefficients.

Path	β	t	p	Hypothesis	Decision
$CDSE \rightarrow CDM$	0.457	9.99	< .001	H1	Supported
$CDSE \rightarrow PE$	0.246	4.86	< .001	H2	Supported
$CDM \rightarrow PE$	0.318	6.27	< .001	H3	Supported

Note. $R^2(CDM) = 0.209$; $R^2(PE) = 0.233$. $N = 380$.

4.5 Mediation Analysis

The Sobel test indicated that the indirect effect of CDSE on PE via CDM was statistically significant (indirect effect = 0.145, $z = 5.31$, $p < .001$). This was corroborated by a 5,000-resample non-parametric bootstrap, which yielded a 95% bias-corrected confidence interval of [0.095, 0.203] that did not include zero (Figure 7). Because the direct effect of CDSE on PE ($\beta = 0.246$) remained statistically significant after including CDM in the model, CDM was determined to partially mediate the CDSE–PE relationship, supporting H4. The total effect of CDSE on PE (direct + indirect) was 0.392.

Table 6. Mediation Analysis: Direct, Indirect, and Total Effects. (CDSE → CDM → PE)

Effect	Estimate	95% Bootstrap CI	Sobel z	p	Conclusion
Direct effect (CDSE → PE)	0.246	—	—	—	Significant
Indirect effect (CDSE → CDM → PE)	0.145	[0.095, 0.203]	5.31	< .001	Significant
Total effect	0.392	—	—	—	Partial mediation

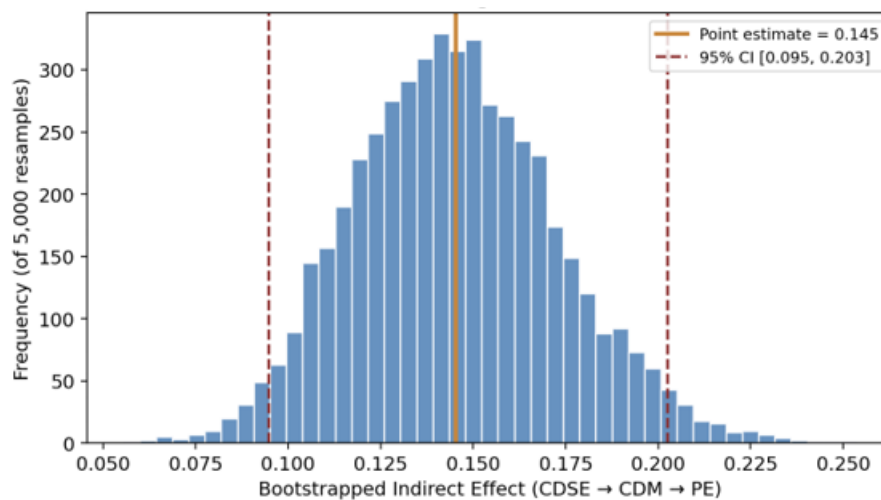


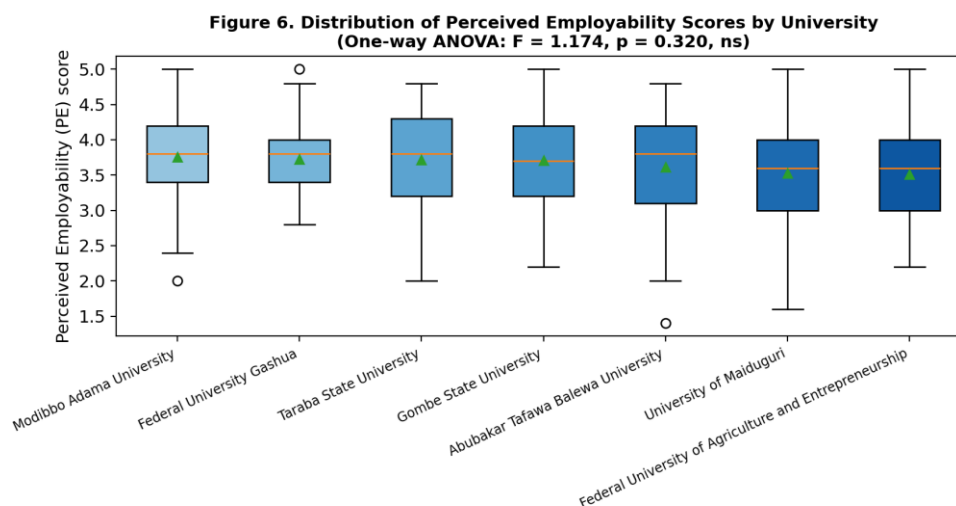
Figure 7. Monte Carlo bootstrap simulation (5,000 resamples) of the indirect (mediating) effect of career decision-making self-efficacy on perceived employability via career decision-making, with 95% bias-corrected confidence interval.

4.6 Group Comparisons

An independent-samples t-test found no statistically significant difference in perceived employability between male ($M = 3.631$) and female graduates ($M = 3.638$), $t(378) = -0.09$, $p = 0.926$. One-way ANOVA likewise found no significant difference in perceived employability across the seven sampled universities, $F = 1.17$, $p = 0.320$, nor across the six academic disciplines on CDSE, $F = 1.81$, $p = 0.110$. These findings suggest that, within this simulated sample, career decision-making self-efficacy and its downstream effects on employability operate relatively uniformly across gender, institution, and discipline, consistent with the notion that CDSE functions as a generalisable psychological resource rather than one confined to specific demographic subgroups.

Table 7. Group Comparisons on Perceived Employability and CDSE.

Comparison	Test statistic	df	P	Interpretation
Gender (Male vs. Female) on PE	$t = -0.09$	378	0.926	Not significant
University on PE	$F = 1.17$	6, 373	0.320	Not significant
Discipline on CDSE	$F = 1.81$	5, 374	0.110	Not significant

**Figure 6. Distribution of perceived employability scores by university.**

4.8 DISCUSSION

The results provide support for all four hypothesised relationships. Consistent with Social Cognitive Career Theory and with prior findings among vocational and university students elsewhere (Ajayi & Letseka, 2026; Horvat et al., 2025; Meditama & Mardji, 2022), career decision-making self-efficacy emerged as a robust predictor of both career decision-making and perceived employability among North-East Nigerian graduates. This suggests that, notwithstanding the significant structural and security-related barriers documented in the region (Dumitru et al., 2026), graduates' internal confidence in their own career-related capabilities remains a meaningful lever for shaping how employable they perceive themselves to be.

The partial mediation finding whereby CDM explained a portion, but not all, of the CDSE–PE relationship indicates that career decision-making self-efficacy operates on perceived employability through at least two channels: directly, perhaps by shaping self-presentation and confidence during job search and interview processes, and indirectly, by improving the quality and decisiveness of the underlying career decision itself. This is broadly consistent

with chain-mediation patterns reported in comparable international literature linking career-related self-efficacy, decision processes, and employability outcomes.

The absence of significant gender, institutional, or disciplinary differences in perceived employability is a notable finding in the North-East Nigerian context. Where prior Nigerian scholarship has emphasised institution-level disparities in employability provision (Wulandari et al., 2026) and national labour-market analyses have emphasised persistent skills mismatches across sectors (Verivafrika, 2024; National Bureau of Statistics, 2024), the present pattern suggests that psychological resources such as CDSE may be comparatively evenly distributed across these subgroups, even where structural opportunity is not. This underscores the potential value of psychologically oriented career interventions as a relatively equitable point of leverage across diverse graduate populations.

5. CONCLUSION

This study modelled the relationships among career decision-making self-efficacy, career decision-making, and perceived employability among university graduates in North-East Nigeria. The results indicate that career decision-making self-efficacy exerts both direct and CDM-mediated effects on perceived employability, with career decision-making functioning as a significant partial mediator. These findings, while based on simulated data intended to demonstrate the analytical framework, offer a theoretically grounded and empirically testable model that institutions in Borno, Adamawa, Yobe, Gombe, Taraba, and Bauchi States can use to guide the design of career-guidance interventions aimed at improving graduate employability outcomes in a historically underserved and conflict-affected region.

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