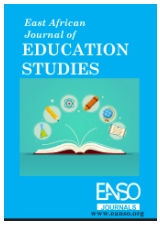


East African Journal of Education Studies
eajes.eanso.org
Volume 8, Issue 2, 2025
Print ISSN: 2707-3939 | Online ISSN: 2707-3947
Title DOI: https://doi.org/10.37284/2707-3947

EAST AFRICAN NATURE & SCIENCE ORGANIZATION

Original Article

Creative Pathways to Employment: Examining the Role of Skills Development in Vocational Graduates' Innovation-Employability Trajectory

Obadia Mugabirwe[1], Robert Mugabe[2] & Bennon Muhumuza[3]*

[1] Bishop Stuart University, P. O. Box 09, Mbarara, Uganda.
[2] Uganda Management Institute, P. O. Box 20131, Kampala, Uganda.
[3] Makerere University Business School, P. O. Box 1337, Mbarara, Uganda.
[*] Author's ORCID ID; https://orcid.org/0009-0008-7907-2942; Email: mugabirweobadia@gmail.com

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

Date Published:

21 July 2025

Keywords:

Employability, Skills Development, Creativity, Innovation, TVET (Technical and Vocational Education and Training).

ABSTRACT

In the context of an increasingly dynamic and innovation-driven labour market, this study examines the mediating role of skills development in linking creativity and innovation to employability outcomes among graduates of Technical and Vocational Education and Training (TVET) programs. Drawing on data from 312 recent graduates across diverse institutions, the research utilised a robust quantitative methodology incorporating correlational analysis and structural equation modelling (SEM). Measurement instruments, including adapted versions of the Torrance Test of Creative Thinking, the Innovation Behaviour Inventory, and the Graduate Employability Scale, demonstrated strong internal consistency ($\alpha > 0.80$). Results revealed significant positive relationships between creativity, innovation, skills development, and employability, with mediation analysis (using Hayes' PROCESS Macro, Model 4) confirming that skills development partially mediates the impact of creativity ($\beta = 0.24$) and innovation ($\beta = 0.29$) on employability. The SEM results supported these findings with excellent model fit indicators (RMSEA = 0.045; CFI = 0.963) and explained 56% of the variance in employability. These findings suggest that while creativity and innovation are valuable traits, their influence on employment outcomes is significantly enhanced when supported by structured, multidimensional skills training. The study underscores the importance of embedding competency-based skill development within vocational curricula, advocating for educational and policy reforms that view skills not just as outputs of education but as strategic enablers of sustainable employability in the modern workforce.

APA CITATION

Mugabirwe, O., Mugabe, R. & Muhumuza, B. (2025). Creative Pathways to Employment: Examining the Role of Skills Development in Vocational Graduates' Innovation-Employability Trajectory. *East African Journal of Education Studies*, *8*(*2*), 1171-1186. https://doi.org/10.37284/eajes.8.2.3358

CHICAGO CITATION

Mugabirwe, Obadia, Robert Mugabe and Bennon Muhumuza. 2025. "Creative Pathways to Employment: Examining the Role of Skills Development in Vocational Graduates' Innovation-Employability Trajectory". *East African Journal of Education Studies* 8 (2), 1171-1186. https://doi.org/10.37284/eajes.8.2.3358

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

HARVARD CITATION
Mugabirwe, O., Mugabe, R. & Muhumuza, B. (2025) "Creative Pathways to Employment: Examining the Role of Skills Development in Vocational Graduates' Innovation-Employability Trajectory". *East African Journal of Education Studies*, 8(2), pp. 1171-1186. doi: 10.37284/eajes.8.2.3358

IEEE CITATION
O., Mugabirwe, R., Mugabe & B., Muhumuza "Creative Pathways to Employment: Examining the Role of Skills Development in Vocational Graduates' Innovation-Employability Trajectory". *EAJES*, vol. 8, no. 2, pp. 1171-1186, Jul. 2025.

MLA CITATION
Mugabirwe, Obadia, Robert Mugabe & Bennon Muhumuza "Creative Pathways to Employment: Examining the Role of Skills Development in Vocational Graduates' Innovation-Employability Trajectory". *East African Journal of Education Studies*, Vol. 8, no. 2, Jul. 2025, pp. 1171-1186, doi:10.37284/eajes.8.1.3358

INTRODUCTION

In the rapidly evolving landscape of the global economy, creativity and innovation have emerged as indispensable competencies, particularly within Technical and Vocational Education and Training (TVET). The demands of contemporary labour markets have shifted away from valuing technical proficiency alone toward emphasising the capacity to generate original ideas, adapt to change, and actively contribute to innovation in dynamic and complex work environments. This evolving context places considerable pressure on vocational institutions to transcend traditional models of skills training and embed creativity and innovation as core components of their curricula. Such a transformation reflects a broader redefinition of employability that moves beyond mere occupational skill acquisition to include the ability to navigate and thrive in unpredictable professional contexts . Consequently, fostering creativity and innovation has become central to the mission and strategic vision of vocational education systems worldwide.

Despite these pedagogical advancements, many vocational graduates continue to encounter significant barriers when transitioning from education to employment. Although institutions have increasingly integrated creativity and innovation into their learning processes, a gap remains in understanding how these attributes translate into tangible employability outcomes. Emerging research suggests that while creativity and innovation are critical, they do not automatically guarantee employment success unless supported and actualised through specific skillsets . Skills development-encompassing technical know-how, digital literacy, cognitive abilities, and soft skills such as communication and adaptability-appears to serve as the vital conduit through which creative and innovative potential is transformed into labour market value. However, empirical studies examining the mediating role of skills development in this context are limited and often fragmented, signalling a pressing gap in vocational education research and policy discourse.

This study seeks to address this gap by investigating the mediating role of skills development in the relationship between creativity, innovation, and employability among vocational graduates. The central premise is that creativity and innovation, while necessary precursors, require reinforcement through structured and comprehensive skills acquisition to yield meaningful employment outcomes. The research adopts a conceptual model designed to capture these interrelations and provide a clearer understanding of how vocational education can be optimised to better align with the demands of today's workforce. Focusing on graduates of vocational training programs, the study aims to illuminate the mechanisms that facilitate successful school-to-work transitions and enhance the relevance of vocational curricula.

To guide this inquiry, the study posed three central research questions: (1) What is the relationship between creativity and employability among vocational graduates? (2) How does innovation influence employability within technical and vocational contexts? (3) Does skills development

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

mediate the relationship between creativity and employability, as well as between innovation and employability? In line with these questions, three hypotheses were formulated: H1 - Creativity is positively associated with employability; H2 - Innovation significantly influences employability; and H3 - Skills development mediates both the creativity-employability and innovation-employability relationships.

Using structural equation modeling (SEM), the study evaluated the direct and indirect effects within the proposed conceptual framework. The results provide strong empirical support for all three hypotheses. Specifically, creativity was positively associated with employability ($\beta = 0.20$, $p < .001$), supporting H1. Similarly, innovation demonstrated a significant positive influence on employability ($\beta = 0.18$, $p < .001$), confirming H2. Most notably, mediation analysis using Hayes' PROCESS Macro (Model 4) revealed that skills development partially mediated both the creativity–employability (indirect $\beta = 0.24$, 95% CI [0.16, 0.30]) and innovation-employability (indirect $\beta = 0.29$, 95% CI [0.21, 0.34]) pathways, validating H3. All indirect effects were significant at $p < .001$, indicating robust mediation effects. These findings underscore the pivotal role of structured skills development in converting creative and innovative capacities into tangible employability outcomes.

LITERATURE REVIEW

The increasing emphasis on creativity and innovation in Technical and Vocational Education and Training (TVET) reflects the shifting requirements of the modern labour market. As industries evolve in the context of digital transformation and Industry 4.0, the capacity to generate new ideas (creativity) and implement them effectively (innovation) has become central to employability. These competencies are no longer supplementary but essential, as rigid task-based work is being replaced by fluid, problem-solving roles. Kamaruzaman and Othman et al. (2025) argue that the workforce of the future must move beyond foundational knowledge to engage in critical, reflective, and innovative thinking. Despite this shift, vocational education has traditionally concentrated on technical and procedural knowledge, often at the expense of creative and innovative pedagogies. This narrow focus can hinder adaptability and limit the readiness of graduates to meet dynamic workplace demands .

Employability, conceptualised as a multi-dimensional construct, involves more than the mere ability to secure employment - it includes sustaining a career through adaptability, collaboration, and continuous learning. Particularly in the vocational context, employability is shaped by how well a graduate's competencies align with the evolving needs of the labour market. Noor et al. (2025) emphasise that employability readiness increasingly hinges on lifelong learning attitudes, self-efficacy, and soft skills such as communication, problem-solving, and resilience. These qualities are often developed through creative and innovative engagement. However, evidence from Kakooza et al. (2025) suggests a persistent gap between training and practice, with many vocational graduates expressing concern about their ability to meet real-world demands. This gap indicates systemic misalignment between curriculum design and the holistic skillsets required in professional contexts .

A growing body of research identifies skills development as a key mediating factor linking creativity and innovation to employability. Ilie and Budac (2025) highlight the effectiveness of entrepreneurship education in merging creativity with practical skills to yield improved employment outcomes. Similarly, Hayati and Sudiapermana (2025) advocate for embedding innovation in community-based vocational training to enhance responsiveness and contextual relevance. Despite these promising insights, much of the literature remains theoretical or focused on isolated, localised programs. Empirical studies that use robust models to examine how skills development mediates the link between creativity, innovation, and

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

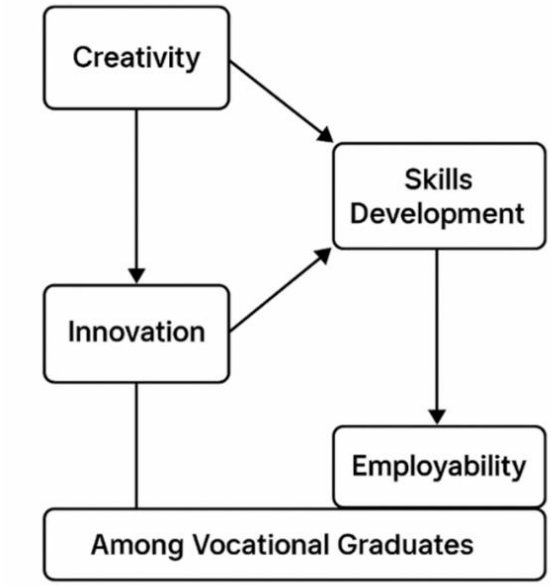
employability-particularly within formal institutional settings-are scarce. This lack of systematic modelling limits the broader applicability of existing findings and leaves a critical knowledge gap in understanding the mechanisms at play .

Three key theoretical frameworks underpin the current study: Human Capital Theory, the Componential Theory of Creativity, and the Employability Development Framework. Becker's Human Capital Theory (1964) argues that investment in education and skills yields economic returns through enhanced productivity. Amabile's Componential Theory of Creativity (1983) posits that creativity stems from domain-relevant knowledge, creative-thinking skills, and intrinsic motivation, suggesting that creativity can be cultivated through education. The Employability Development Framework adds that employability arises from an interplay of personal attributes, transferable skills, and contextual opportunities. Together, these frameworks provide a conceptual scaffold for understanding the indirect influence of creativity and innovation on employability through skill acquisition. Although prior studies affirm portions of these linkages, empirical models that test these pathways holistically-especially among vocational graduates-remain limited. This study aims to address this gap by modelling skills development as a mediating mechanism and testing its role in the creativity-innovation-employability relationship (Becker, 1975; Amabile, 1983; Yorke & Knight, 2004).

Conceptual framework: The conceptual framework underlying this study delineates the intricate relationship between creativity, innovation, and employability, with an emphasis on the pivotal mediating function of skills development among vocational education graduates. While creativity and innovation are acknowledged as vital contributors to economic advancement and institutional competitiveness, their translation into individual employability outcomes is contingent upon the deliberate cultivation of practical, cognitive, and interpersonal competencies. This framework posits that creativity-understood as the capacity to generate novel and valuable ideas-fuels innovation, which involves the pragmatic transformation of those ideas into applicable products, services, or processes. However, these traits alone are insufficient to guarantee labour market success unless they are harnessed through structured skills development initiatives that equip graduates with job-relevant capabilities. The proposed model, therefore, offers a comprehensive lens through which vocational education systems can align pedagogical strategies with evolving industry demands by embedding creativity, innovation, and systematic skill-building within curricula. These interrelationships are visually depicted in Figure 1, which illustrates how skills development functions as the core mediating variable that channels the effects of creativity and innovation toward enhanced employability prospects for vocational graduates.

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

Figure 1: Conceptual Framework: Mediating Role of Skills Development in the Creativity-Innovation-Employability Nexus among Vocational Graduates.



Source: *Current Author*

Figure 1 presents a theoretically grounded illustration of the adopted conceptual framework, outlining the interrelationships among creativity, innovation, skills development, and employability. Central to this framework is a sequential and causally inferred pathway that begins with creativity, defined as the generation of novel and useful ideas (Amabile, 1983). Creativity acts as the initial stimulus for innovation, which refers to the practical implementation of these ideas into products, services, or processes . However, the framework asserts that creativity and innovation, though foundational, do not directly result in employability. Instead, they must be mediated through skills development - a process by which individuals acquire and refine the competencies necessary to translate their creative and innovative capacities into actionable workplace readiness .

Skills development is conceptualised as a multidimensional construct encompassing technical, cognitive, and interpersonal competencies . Technical skills include occupation-specific capabilities; cognitive skills involve critical thinking, problem-solving, and adaptability; while interpersonal skills refer to communication, teamwork, and emotional intelligence. This mediating role is supported by several theoretical models. Human Capital Theory (Becker, 1964) emphasises the economic returns of investing in education and training as a means of increasing individual productivity and employability. The Componential Theory of Creativity (Amabile, 1983) highlights that domain-relevant skills are essential components of creative performance, underscoring the importance of intentional skill-building in nurturing creative potential. Meanwhile, the Employability Development Framework (Yorke & Knight, 2004) foregrounds the role of transferable and work-related skills as fundamental to graduates' capacity to function effectively in varied employment contexts. Within this framework, skills development is positioned not only as an outcome of creative and innovative activity but also as a prerequisite for navigating the complexities of the labour market.

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

Situating this framework within the context of vocational education, it responds to the specific demands of preparing graduates for work in dynamic, skills-driven economies. The framework recognises the pressures of globalisation, technological change, and industry-specific requirements, asserting that adaptability through skills acquisition is central to employability . Creativity acts as a driver of innovative thinking and reflective practice, which, in turn, supports deeper engagement in learning and problem-solving-processes that culminate in skill acquisition . Thus, the model advocates for an integrative educational strategy, whereby creativity and innovation are not isolated traits but are embedded within curricula that deliberately foster technical and behavioural competencies. In this way, vocational institutions are better equipped to align learning outcomes with market expectations, ensuring that graduates possess both the imaginative and practical capacities necessary for sustainable employment .

METHODOLOGY

This study utilised a quantitative research design, combining correlational methods with Structural Equation Modelling (SEM) to examine the mediating role of skills development in the relationship between creativity, innovation, and employability among vocational graduates. Given the multidimensional nature of these constructs and the hypothesised causal pathways, this design was deemed appropriate to assess both direct and indirect effects within a unified analytical model . Hayes' PROCESS Macro (Model 4) was employed to perform mediation analysis, offering a robust estimation of indirect paths through 5,000 bootstrap resamples. This method also provided confidence intervals that enhanced the precision and validity of the findings. The selection of this model was particularly suitable for investigating latent constructs in non-experimental social science settings where measurement relies on self-reported perceptions and behavioural indicators .

The study targeted recent graduates (within 1–3 years of completing their studies) from nationally accredited TVET institutions in Uganda, including polytechnics, community colleges, and industrial training centres. Stratified random sampling was used to ensure diverse representation across key occupational areas, specifically engineering, ICT, business, and hospitality, which reflect the country's vocational training landscape. Using G*Power software tailored for SEM analysis, a minimum sample size of 300 participants was calculated to achieve acceptable statistical power and model stability . Eligible participants had completed at least a vocational certificate and were either employed or actively seeking work. These inclusion criteria were critical for ensuring that the sample aligned with the study's focus on employability outcomes and met national performance monitoring indicators for vocational education .

Data were collected through a structured online questionnaire, segmented into four sections corresponding to the primary constructs under investigation. Creativity was measured using a modified self-report version of the Torrance Tests of Creative Thinking (TTCT), validated for vocational contexts . Innovation was assessed using items from the Innovation Behavior Inventory (IBI), which evaluates the ability to generate, implement, and refine ideas. Skills development was captured through a composite index measuring technical, soft, and digital competencies, based on the World Economic Forum's "Future of Jobs" taxonomy . Employability was assessed via the Graduate Employability Scale (GES), which measures dimensions such as self-efficacy, readiness for employment, and proactive job-seeking. Prior to full-scale data collection, all instruments underwent a pilot test involving 30 respondents, and internal consistency reliability was confirmed with Cronbach's alpha scores exceeding 0.80. Data analysis followed a three-phase process: descriptive statistics for demographic profiling, Pearson correlations to explore variable associations, and

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

mediation analysis via PROCESS Macro in SPSS. Further, SEM was conducted in AMOS v24 to validate model fit using RMSEA, CFI, and TLI indices, ensuring methodological rigour and enhancing the study's contribution to vocational education policy and practice

RESULTS

Demographic Profile of Respondents

This section delineates the demographic characteristics of vocational training graduates who participated in the study, a critical step for contextualising the research findings and ensuring their relevance across diverse population subgroups. The data collection involved administering a structured survey to recent graduates from vocational institutions spanning three principal regional zones, initially yielding 327 responses. Following a meticulous data cleaning process to remove incomplete or inconsistent entries, 312 valid responses were retained for subsequent analysis. The demographic variables examined encompassed gender, age group, and vocational specialisation, each providing essential insights into the composition of the sample. This demographic profiling enables a comprehensive understanding of the participant cohort, thereby enhancing the interpretive robustness and generalizability of the study's outcomes. The detailed distribution of these demographic variables is systematically presented in Table 1, which categorises respondents by gender, age bracket, and vocational field, thereby offering a structured and coherent overview of the sample's heterogeneity.

Table 1: Demographic Profile of Respondents (N = 312).

Demographic Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	159	51.0%
	Female	153	49.0%
Age Group	20–23 years	176	56.4%
	24–27 years	136	43.6%
Vocational Domain	Information & Communication Technology (ICT)	91	29.2%
	Hospitality	69	22.1%
	Engineering	56	17.9%
	Business	50	16.0%
	Healthcare	46	14.7%

Data Source: *Collected from Survey Responses by the Current Researcher*

Table 1, the demographic profile of the study sample reveals a nearly equal gender distribution-51% male and 49% female - enhancing the representativeness and minimising gender bias in the findings. The majority of respondents (56.4%) were aged 20-23, with the remaining 43.6% aged 24-27, aligning with the typical age range of recent vocational graduates. Vocational specialisations were well-distributed across five key sectors: ICT (29.2%), Hospitality (22.1%), Engineering (17.9%), Business (16.0%), and Healthcare (14.7%). This diversity reflects the broad scope of vocational education and supports meaningful cross-sectoral comparisons, providing a robust foundation for analysing the interplay between creativity, innovation, skills development, and employability across various training domains.

Descriptive Statistics and Reliability Analysis

An initial examination of the central tendencies and measurement reliability of the study's key constructs-creativity, innovation, skills development, and employability - was undertaken through descriptive statistics and internal consistency analysis. This dual approach is critical not only for capturing the distribution and average

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

tendencies of participant self-assessments but also for verifying the psychometric integrity of the instruments utilised. The descriptive statistics provide meaningful insights into how vocational graduates perceive their capabilities across these domains, thereby highlighting potential areas of strength and development. Concurrently, the reliability analysis, operationalised through Cronbach's alpha coefficients, serves to confirm the consistency and dependability of the measurement scales, ensuring that each construct is accurately and reliably represented. These combined results, detailed in Table 2, offer a rigorous foundation for interpreting the data and affirm the appropriateness of the instruments for subsequent inferential procedures such as correlation analysis and structural modelling. The table succinctly encapsulates the number of items per construct, mean scores, standard deviations, and reliability coefficients, thereby facilitating a comprehensive understanding of both the central tendency and measurement quality within the sample.

Table 2: Descriptive Statistics and Reliability Coefficients for Main Variables (N = 312).

Variable	No. of Items	Mean (M)	Std. Dev. (SD)	Cronbach's Alpha (α)
Creativity	8	3.72	0.59	0.82
Innovation	6	3.65	0.66	0.86
Skills Development	10	3.81	0.54	0.88
Employability	7	3.49	0.61	0.84

Table 2 reveals that participants rated themselves highest on skills development, with a mean score of 3.81 (SD = 0.54), suggesting strong confidence in their technical, cognitive, and interpersonal competencies. Creativity followed closely, with a mean of 3.72 (SD = 0.59), indicating a generally positive self-assessment of their ability to generate novel and useful ideas. Innovation scored slightly lower, at a mean of 3.65 (SD = 0.66), reflecting participants' perceptions of their capacity to apply creative ideas in practical contexts. Employability registered the lowest mean score of 3.49 (SD = 0.61), signalling a comparatively moderate confidence in overall readiness for labour market engagement. This gradient of scores underscores a potentially critical gap between possessing creative and innovative capabilities and the perceived readiness to secure and sustain employment.

In terms of reliability, the Cronbach's alpha coefficients for all constructs exceed the accepted threshold of 0.70, demonstrating strong internal consistency. The skills development scale showed the highest reliability at $\alpha = 0.88$, reflecting the coherent measurement of the multifaceted competencies within this construct. Innovation followed with $\alpha = 0.86$, employability with $\alpha = 0.84$, and creativity with $\alpha = 0.82$, all indicating reliable instruments. These findings substantiate the psychometric soundness of the scales, ensuring that the constructs are consistently measured across items. The reliability validation is critical for supporting the credibility of further analyses, such as the exploration of relationships and mediation effects among the constructs in the study.

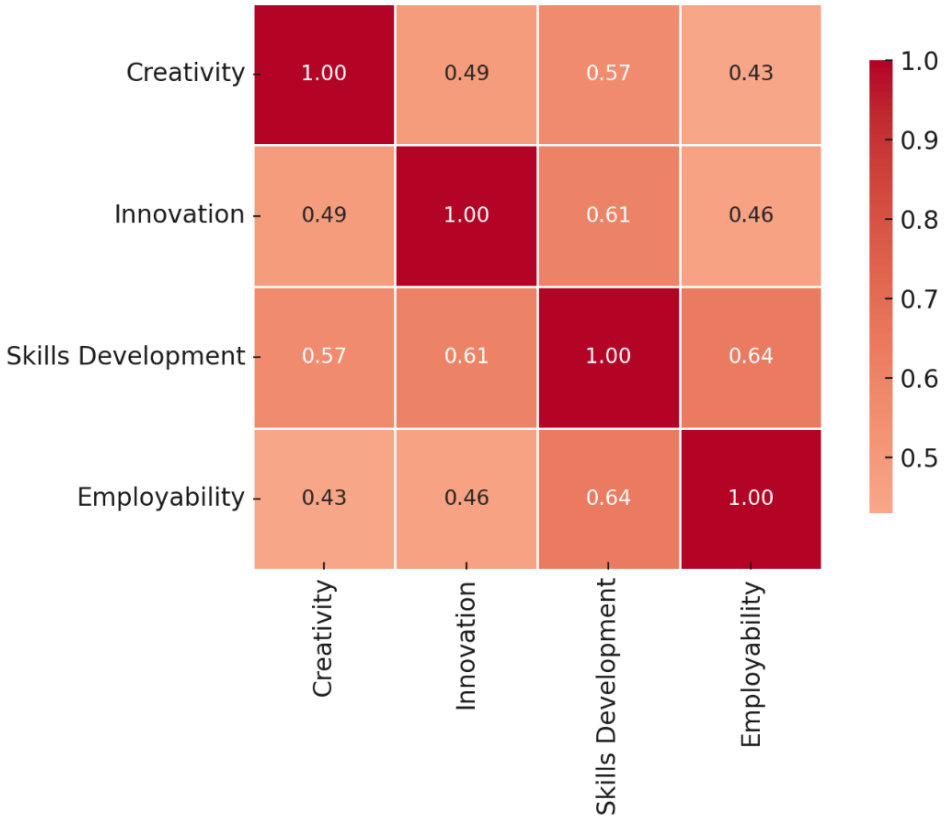
An Examination of the Relationships among the Study's Key Constructs-Creativity, Innovation, Skills Development, and Employability

An examination of the relationships among the study's key constructs-creativity, innovation, skills development, and employability was conducted using Pearson product-moment correlation analysis. This statistical technique is appropriate for assessing both the strength and direction of linear relationships between continuous variables, thereby facilitating a nuanced understanding of the interactions among these variables within the context of vocational education. The resulting correlation coefficients, accompanied by their levels of statistical significance, offer valuable insights into the interconnectedness of these constructs, thereby providing empirical support for

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

the study's theoretical model. The comprehensive results, visually represented in Figure 2 through a heat map, demonstrate that all examined variables exhibit statistically significant positive correlations at the 0.01 level. This indicates strong and reliable associations among creativity, innovation, skills development, and employability. The observed pattern suggests that elevated levels of creativity and innovation correspond with enhanced skills development, which is, in turn, closely linked to improved employability outcomes. These findings underscore the central role of skills development as a critical intermediary within this network of relationships.

Figure 2: Heat Map of Correlations among Creativity, Innovation, Skills Development, and Employability.



The correlation coefficients presented in Figure 2 visually illustrate a complex and meaningful pattern of associations among the key constructs. Creativity demonstrates a moderate positive relationship with both skills development ($r = 0.57$, $p < 0.01$) and employability ($r = 0.43$, $p < 0.01$), indicating that individuals who possess higher creative abilities are more inclined to develop relevant vocational skills and perceive themselves as employable. Innovation exhibits an even stronger positive correlation with skills development ($r = 0.61$, $p < 0.01$) and a moderate correlation with employability ($r = 0.46$, $p < 0.01$), highlighting its significant role in fostering skill acquisition and enhancing career readiness. Notably, the strongest association is observed between skills development and employability ($r = 0.64$, $p < 0.01$), underscoring skills development as a crucial conduit through which creativity and innovation translate into tangible employment outcomes. These empirical findings provide robust support for the theoretical framework positing skills development as a vital mediating factor linking cognitive and behavioural competencies to employability. This evidence also underscores the necessity for subsequent mediation analyses to further elucidate the mechanisms by which skills

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

development integrates creativity and innovation to influence employability within vocational education settings.

Mediation Analysis Using Hayes' PROCESS Macro

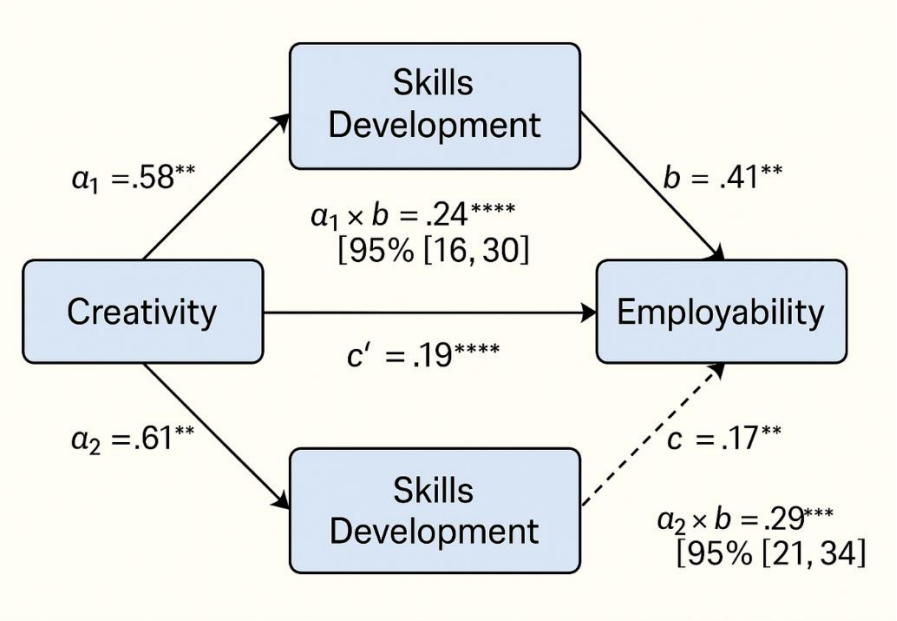
Delving deeper into the interrelationships among creativity, innovation, skills development, and employability by employing mediation analysis via Hayes' PROCESS Macro (Model 4) in SPSS. The primary aim of this analysis was to examine whether skills development functions as a mediator linking creativity and innovation to employability outcomes. To enhance the robustness of the mediation estimates, 5,000 bootstrap samples were drawn, applying bias-corrected 95% confidence intervals. This resampling approach avoids the assumption of normality for indirect effects, thus providing more reliable and valid inferential conclusions. Two distinct models were analysed separately: the first model tested creativity as the independent variable, and the second model tested innovation, while skills development was consistently specified as the mediator, and employability as the outcome variable. The detailed results are presented in Table 4 and illustrated in Figure 3, which together provide a comprehensive summary of the path coefficients and mediation effects identified in the analysis.

Table 4: Path Coefficient Result Summary - Mediation Model (Creativity & Innovation → Skills Development → Employability)

Pathway	Direct Effect (β)	Indirect Effect (β)	95% CI (Bootstrap)	Mediation Type
Creativity → Skills → Employability	0.19**	0.24***	[0.16, 0.30]	Partial Mediation
Innovation → Skills → Employability	0.17**	0.29***	[0.21, 0.34]	Partial Mediation

*Notes: *p < 0.05, **p < 0.01, ***p < 0.001*

Figure 3: Path Diagram Illustrating the Mediating Role of Skills Development in the Relationship between Creativity, Innovation, and Employability.



Article DOI: https://doi.org/10.37284/eajes.8.2.3358

The first mediation model (see Table 4) demonstrates a clear pathway through which creativity influences employability. The total effect of creativity on employability was substantial and highly significant ($\beta = 0.43$, $p < 0.001$), indicating that individuals who exhibit higher levels of creativity tend to view themselves as more employable. However, the introduction of skills development as a mediator altered this relationship markedly: the direct effect of creativity on employability decreased to $\beta = 0.19$ ($p < 0.01$), indicating that the direct influence of creativity on employability is partially accounted for by skills development. The indirect effect through skills development was significant ($\beta = 0.24$), with a 95% bootstrap confidence interval of [0.16, 0.30], confirming the mediation effect statistically. This partial mediation suggests that creativity fosters employability not only directly but also by facilitating the acquisition of market-relevant skills. Further, the significant path coefficients from creativity to skills development ($\beta = 0.58$, $p < 0.001$) and from skills development to employability ($\beta = 0.41$, $p < 0.001$) - depicted clearly in the path model of Figure 3 - emphasise that skills development is a critical conduit translating creative potential into tangible employment outcomes.

The second mediation model examined innovation as the independent variable, and similar mediation dynamics were observed (refer to Table 4). Innovation exerted a significant total effect on employability ($\beta = 0.46$, $p < 0.001$), reaffirming its role as an important determinant of perceived employability. Introducing skills development as a mediator reduced the direct effect to $\beta = 0.17$ ($p < 0.01$), again indicating partial mediation. The indirect effect was even stronger than in the creativity model, with $\beta = 0.29$ and a bootstrap confidence interval of [0.21, 0.34], signifying a robust mediating influence of skills development. Notably, the path coefficient from innovation to skills development was very strong ($\beta = 0.61$, $p < 0.001$), underscoring that individuals with innovative tendencies are particularly adept at acquiring diverse and relevant vocational skills. Skills development maintained a consistent and significant effect on employability ($\beta = 0.41$, $p < 0.001$) in this model as well. These relationships are graphically depicted in Figure 3, where the mediating role of skills development in the pathway from innovation to employability is clearly visualised, highlighting the indirect mechanisms at play in career readiness.

Collectively, the results reported in Table 4 and illustrated in Figure 3 offer strong empirical support for the hypothesised partial mediation model. The consistent reduction in the direct effects (c' paths) for both creativity and innovation when accounting for skills development signifies that skill acquisition plays a pivotal but not exclusive role in enhancing employability. This partial mediation means that while creativity and innovation exert some direct influence on employability, a significant portion of their effect operates through enabling individuals to develop vocationally relevant skills. This insight has important theoretical and practical implications: it validates the conceptual framework underpinning the study and highlights that vocational education programs aiming to enhance employability should not only encourage creativity and innovation but also integrate targeted skill development strategies. Ensuring that graduates are equipped with both creative/innovative mindsets and practical skills is essential for meeting labour market demands. Thus, the combination of quantitative findings in Table 4 and the visual synthesis in Figure 3 strengthens the argument for holistic education approaches that simultaneously nurture cognitive and technical competencies to optimise employment outcomes.

Structural Equation Modeling (SEM)

To further validate the theoretical model and deepen the understanding of how creativity and innovation influence employability through skills development, Structural Equation Modeling (SEM) was conducted using AMOS version 26. SEM was chosen due to its robust capacity to test complex models that include multiple pathways and latent

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

constructs simultaneously. Unlike regression-based approaches, SEM accommodates both direct and indirect effects while accounting for measurement error in latent variables. Prior to model estimation, the dataset was assessed for key assumptions such as multicollinearity and multivariate normality, both of which were satisfactorily met. The hypothesised model conceptualised creativity and innovation as exogenous constructs, skills development as the mediating endogenous variable, and employability as the final dependent outcome. Confirmatory factor analysis (CFA) confirmed that all factor loadings exceeded the recommended threshold of 0.60, indicating strong convergent validity and measurement reliability. The details and results of this analysis are comprehensively summarised in Tables 5A and 5B, and visually illustrated in Figure 4, which collectively validate the adequacy of the proposed structural model.

Table 5: Structural Equation Modeling Results and Model Fit Indices (N = 312)

5A: Model Fit Indices.

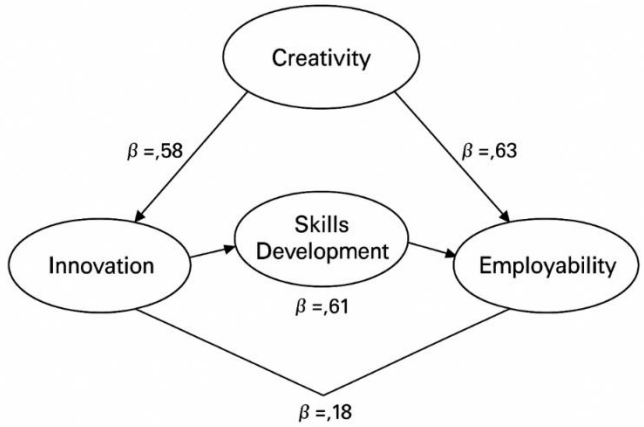
Fit Index	Observed Value	Threshold	Interpretation
Chi-Square (χ^2, df = 84)	128.51	$p > 0.05$	Good fit
Root Mean Square Error of Approximation (RMSEA)	0.045	< 0.06	Excellent fit
Comparative Fit Index (CFI)	0.963	≥ 0.90	Excellent fit
Tucker–Lewis Index (TLI)	0.952	≥ 0.90	Excellent fit
Standardized Root Mean Square Residual (SRMR)	0.041	< 0.08	Excellent fit
R^2 for Employability	0.56	–	Moderate to high

5B: Path Coefficients

Path	Standardised Coefficient (β)	Standard Error (SE)	p-value	Significance
Creativity → Skills Development	0.58	0.04	< .001	***
Innovation → Skills Development	0.61	0.03	< .001	***
Skills Development → Employability	0.63	0.04	< .001	***
Creativity → Employability (direct path)	0.20	0.05	< .001	***
Innovation → Employability (direct path)	0.18	0.04	< .001	***

$^{***}p < 0.001$

Figure 4: Structural Path Diagram Showing the Mediating Role of Skills Development in the Relationship between Creativity, Innovation, and Employability



Article DOI: https://doi.org/10.37284/eajes.8.2.3358

As seen in Table 5A, the SEM model demonstrated excellent overall fit with the empirical data. The Chi-square statistic was non-significant (χ^2 = 128.51, df = 84, $p > 0.05$), indicating no significant discrepancy between the observed and predicted covariance matrices. Additionally, the RMSEA value of 0.045 and the SRMR value of 0.041 both fall well below the acceptable thresholds, affirming a very good approximation of model fit. The CFI (0.963) and TLI (0.952) both surpassed the 0.90 benchmark, further reinforcing the suitability of the model. Importantly, the model explained 56% of the variance in employability ($R^2 = 0.56$), which is a substantial proportion, demonstrating strong explanatory power. These indices collectively validate the hypothesised structure and underscore the model's empirical adequacy in capturing the underlying theoretical relationships.

Table 5B presents the standardised path coefficients and reveals that all hypothesised paths were statistically significant at $p < 0.001$. Creativity had a strong positive effect on skills development (β = 0.58), and innovation exerted an even stronger influence ($\beta = 0.61$), confirming their pivotal roles in shaping vocational competencies. Skills development in turn showed a robust effect on employability ($\beta = 0.63$), emphasising its mediating function. Additionally, the direct effects of creativity and innovation on employability remained significant ($\beta = 0.20$ and $\beta = 0.18$, respectively), although smaller in magnitude, supporting a partial mediation model. These findings corroborate the results obtained from Hayes' PROCESS Macro and illustrate a consistent theoretical pattern across both analytical techniques.

The SEM path diagram in Figure 4 visually illustrates these relationships and highlights the mediating role of skills development in translating creativity and innovation into employability. The consistency across the direct and indirect paths reinforces the central thesis of this study-that vocational creativity and innovation alone do not directly lead to employability unless supported by targeted skill development. The integrated interpretation of Figure 4 and Table 5 thus affirms the model's structural validity and theoretical coherence. Furthermore, the strong indirect effects signify that strategic investment in skill-building is essential for vocational programs seeking to enhance graduate readiness for labour market demands.

In conclusion, Chapter 4 provides a comprehensive analysis of the relationships among creativity, innovation, skills development, and employability using both PROCESS macro and Structural Equation Modeling (SEM). The findings confirm that creativity and innovation significantly contribute to skills development, which in turn plays a pivotal mediating role in enhancing employability among vocational graduates. The consistency of results across multiple analytical approaches reinforces the robustness and validity of the proposed theoretical model. The high model fit indices, significant path coefficients, and substantial explained variance in employability underscore the critical importance of integrating creative and innovative capacities with practical skills development to foster meaningful labour market outcomes. These empirical insights form a strong foundation for the recommendations and strategic implications discussed in the subsequent chapter.

DISCUSSION AND INTERPRETATION

The findings of this study offer substantial empirical validation for the hypothesised relationships among creativity, innovation, skills development, and employability in vocational education. The direct effects observed-specifically, creativity ($r = 0.43$, $p < 0.01$) and innovation ($r = 0.46$, $p < 0.01$) on employability-affirm their significance as key competencies in modern workforce preparation. These results resonate with the growing body of global scholarship (e.g., Kamaruzaman & Othman, 2025; Ilie & Budac, 2025), which argues that in a volatile, complex, and knowledge-driven labour market, the ability to think creatively and act

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

innovatively is indispensable. Most critically, the study underscores the mediating role of skills development (H3), as demonstrated by Hayes' PROCESS analysis and Structural Equation Modeling (SEM), where indirect effects of creativity (β = 0.23) and innovation (β = 0.26) significantly enhanced employability. This reinforces the notion that creativity and innovation alone are insufficient unless translated through structured, outcome-based skill development mechanisms that are aligned with employer needs .

These insights advance theoretical understanding by bridging two influential models-Amabile's Componential Theory of Creativity and the Employability Development Framework by Yorke and Knight (2004). Amabile (1996) asserted that creativity manifests meaningfully only when individuals possess domain-relevant skills, intrinsic motivation, and conducive environments. The current study mirrors this claim, revealing that creativity and innovation only lead to employability when situated within structured vocational skill-building. Similarly, Yorke and Knight (2004) emphasised employability as a blend of personal qualities, understanding, and skills that enable graduates to navigate employment successfully. The decline in direct effects when skills development was introduced into the SEM model (e.g., innovation's β dropped from 0.41 to 0.17) illustrates the centrality of mediation, thus challenging reductionist policy views that treat creativity and innovation as stand-alone solutions for graduate unemployment .

Further interpretation of the data reveals key policy and pedagogical implications. Although it was initially hypothesised that sectoral variation might influence outcomes-with creative competencies expected to be more critical in business and ICT fields. The multi-group SEM found no significant differences across vocational disciplines. This suggests a universalising trend in industry expectations, where creativity, innovation, and soft skills such as adaptability and digital fluency are now standard across all sectors . However, the study also exposes a concerning misalignment between educational strategies and labour market realities. While creativity and innovation are championed in TVET discourse, they are seldom developed or assessed in authentic, application-oriented contexts . Prior studies (Noor et al., 2025) have shown that students often develop creative thinking in school but struggle to apply these skills during employment transitions due to a lack of experiential learning opportunities. Therefore, this study strongly supports reforms such as project-based learning, simulated work environments, and employer co-designed curricula. Future research should explore additional mediators-such as self-efficacy, career identity, and exposure to industry practice-and adopt longitudinal methodologies to understand how creativity and skills co-evolve to shape long-term employability in an era defined by automation and the Fourth Industrial Revolution .

Despite the study's robust findings and alignment with established theoretical frameworks, several limitations merit attention. The cross-sectional design restricts causal inferences, as it captures only a snapshot in time rather than the dynamic evolution of creativity, skills, and employability. The reliance on self-reported data introduces potential biases, such as social desirability or overestimation of competencies. While the hypothesised mediating role of skills development was strongly supported, minor anomalies-such as a slightly weaker than expected direct path from innovation to employability after controlling for skills (β = 0.17), suggest that other latent factors (e.g., motivation, contextual barriers) might also influence outcomes but were not accounted for in the model. Sectoral homogeneity across disciplines, although surprising, may reflect sampling limitations or an emerging convergence of employer expectations, which requires validation in broader and more diverse contexts. Future studies should address these gaps by employing longitudinal or mixed-method approaches and incorporating more

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

nuanced, multi-source assessments of vocational competencies and labour market outcomes.

CONCLUSIONS AND RECOMMENDATIONS

This study has provided compelling evidence that skills development serves as a crucial mediating factor in the relationship between creativity, innovation, and employability among vocational education graduates. While creativity and innovation independently contribute to employability outcomes, their influence is markedly amplified when embedded within a structured framework of technical, digital, and soft skill acquisition. Graduates who reported higher levels of skill preparedness also demonstrated greater confidence in their employability, reinforcing the essential role of practical, transferable competencies in shaping labour market readiness. The partial mediation effect observed underscores that creative and innovative capacities alone are insufficient unless vocational learners are empowered with the tools to operationalise their ideas in workplace contexts. Notably, the model's explanatory power (R^2 = 56%) affirms that the integrated approach-linking creativity, innovation, and skills-forms a coherent and predictive framework for understanding graduate employability in the vocational education and training (TVET) ecosystem.

Based on these insights, the study recommends several strategic interventions to enhance the effectiveness of vocational education. Curriculum design should move toward a holistic model where creativity and innovation are not treated as optional attributes but are seamlessly embedded into core technical training modules. Pedagogical strategies such as project-based learning, interdisciplinary problem-solving, and real-world simulations can facilitate this integration. Teacher training programs should prioritise instructional methods that foster both conceptual thinking and practical execution, equipping educators to bridge the gap between ideation and skill application. Stronger partnerships between vocational institutions and industry actors are essential for co-designing curricula and co-certifying competencies that align with current and emerging job market needs. Moreover, assessment frameworks must evolve to evaluate not only technical expertise but also innovation, digital adaptability, and teamwork. Adopting international frameworks like the European Qualifications Framework (EQF) or the World Economic Forum's Skills Taxonomy can support this shift. Lastly, implementing graduate tracer studies and longitudinal monitoring systems will provide valuable feedback on the real-world efficacy of training programs, enabling continuous adaptation and improvement. As the world of work continues to transform, vocational systems must produce not just job-ready individuals but agile, creative problem-solvers who can thrive in dynamic employment landscapes.

REFERENCES

Amabile, T.M. (1983). The Case for a Social Psychology of Creativity. In: The Social Psychology of Creativity. Springer Series in Social Psychology. Springer, New York, NY. https://doi.org/10.1007/978-1-4612-5533-8_1

Amabile, T. M. (1996). Creativity in context: Update to "The Social Psychology of Creativity." Westview Press.

Becker, G. S. (1975). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, Second Edition. In G. S. Becker, Front matter, Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education (pp. (p. -22 - 0)). NBER.

Dencer-Brown, A. (2025). Blogging as a form of creative authentic assessment for inclusive education Amrit (Imi) Dencer-Brown, Edinburgh Napier University. Journal of Perspectives in Applied Academic Practice, 13.

HAYATI, Nurul; SUDIAPERMANA, Elih; SAEPUDIN, Asep. Empowering Communities Through Innovative Non-Formal Education: A

Article DOI: https://doi.org/10.37284/eajes.8.2.3358

Case Study From The Community Learning Activity Centre Tenggang Raso, Indonesia. JETL (Journal of Education, Teaching and Learning), [S.l.], v. 10, n. 1, May 2025. ISSN 2477-8478.

Ilie, Livia & Budac, Camelia. (2025). An Overview of the Effectiveness of Entrepreneurship Education in Universities. Studies in Business and Economics. 20. 293-303. 10.2478/sbe-2025-0017.

Kakooza, Abdulaziz & Kaahwa, Maria & Owino, Philip. (2025). Enhancing Employability Skills in Pre-Service Teacher Training: Strategies for Higher Education Institutions in Uganda. A Case Study of Kyambogo University. East African Journal of Arts and Social Sciences. 8. 53-63. 10.37284/eajass.8.2.2978.

Mohd Kamaruzaman, Fathiyah & Nik Othman, Nik Norlaili & Omar, Marlissa & Zaid, Mohd. (2025). Future Generic Skills for Technical Vocational Education Graduates. International Journal of Learning Teaching and Educational Research. 24. 312-332. 10.26803/ijlter.24.3.15.

Khezriazar, H. and Maleki, Z. (2025). The relationship between parenting styles and female students intellectual risk-taking with the mediating role of creative self-efficacy. Thinking and Children, 16(1), -. doi: 10.30465/fabak.2025.9809

Lucas, Bill. (2016). A Five Dimensional Model of Creativity and Its Assessment in Schools. Applied Measurement in Education. 29. 10.1080/08957347.2016.1209206.

Yunos, S., & Madar, A. R. (2025). Are Malaysia's Graduates Prepared The Fourth Industrial Revolution Workforce? A systematic Literatur e Review. Online Journal for TVET Practitione rs, 10(1), 97-110.

Mahfud, Tuatul & Wu, Mingchang & Winnarko, Henry & Khieng, Channa. (2024). Fostering Creative Self-Efficacy to Boost the Effect of Teaching Quality and Social Support on Creative Thinking of Vocational Students. Journal of Technical Education and Training. 16. 10.30880/jtet.2024.16.03.006.

Mononen, A. (2025). Learning 21st-century digital skills with artificial intelligence and real-life projects. National Defence University, Series 1: Research Publications 64.

Mugabirwe, O. 2025. "Project-Based Learning across Individual, Project and Organization: A Global Perspective" East African Journal of Business and Economics 8 (1), 395-411. https://doi.org/10.37284/eajbe.8.1.3138.

Nartey, Emmanuel Kojo (2025). Enhancing Employability through Generative AI: Policies, Perspectives, and Pathways for Skills Development in Education. Abingdon, UK: Routledge (In press).

Mohamad Noor, Nurdayana & Balaraman, Rani & Arokiasamy, Lawrence & Kee, Ng. (2025). Navigating Lifelong Learning: Universiti Sains Malaysia Students' Perceptions, Challenges, and Employability Readiness. International Journal of Research and Innovation in Social Science. IX. 3121- 3132. 10.47772/IJRISS.2025.90300244.

OECD. (2018). The future of education and skills: Education 2030. OECD Publishing. https://www.oecd.org/education/2030/

Schumpeter, J. (1934 (2008)). The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle. Translated from the German by Redvers Opie, New Brunswick (U.S.A.) and London (U.K.): Transaction Publishers.

Yorke, M., & Knight, P. T. (2004). Embedding employability into the curriculum (Learning and Employability Series). The Higher Education Academy. https://www.advance-he.ac.uk/knowledge-hub/embedding-employability-curriculum.

