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The Mediating Role of Career Adaptability in the Relationship Between Educational Preparation and Employability Among Art and Design Graduates in Northern China

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Abstract

Graduate employability in creative disciplines depends on educational preparation, professional competencies, and the capacity to navigate changing career conditions. This study examines the relationships among education quality, skill development, industry expectations, career adaptability, and perceived employability among art and design graduates in Northern China. Drawing on Human Capital Theory and Career Construction Theory, the study uses a cross-sectional survey of 400 graduates, supplemented by 30 semi-structured interviews with graduates, educators, and employers. Partial least squares structural equation modelling results indicated positive direct associations between all three explanatory constructs and perceived employability. Career adaptability was also positively associated with employability and exhibited the largest standardized direct coefficient among its predictors ($\beta = .301$). The reported model explained 58% of the variance in career adaptability and 62% in employability. Although the proposed indirect pathways through career adaptability yielded positive algebraically reconstructed point estimates, inconsistencies in the reported mediation coefficients and unavailable bootstrap confidence intervals prevented verification of their statistical significance. Qualitative findings highlighted curriculum–industry misalignment, professional skill gaps, employment barriers, and the importance of practical experience and adaptive career behaviours. The study contributes to graduate employability research by examining educational resources and adaptive career capacities within the context of creative higher education. The findings suggest that employability development requires attention to both professional preparation and career adaptability, while underscoring the need for further longitudinal investigation of the proposed indirect relationships.

Keywords: career adaptability; perceived graduate employability; art and design education; educational preparation; creative industries; Northern China.

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1. Introduction

Graduate employability has become a central concern in higher education as universities face increasing expectations to prepare students for complex and changing labour markets. Although academic qualifications and disciplinary competencies remain important, graduates' capacity to obtain and sustain suitable employment also depends on their ability to interpret occupational requirements, demonstrate professional capabilities, and respond to career uncertainty. Consequently, employability is increasingly understood as a multidimensional construct involving educational, personal, and contextual resources rather than the acquisition of technical skills alone (Knight & Yorke, 2004; Tomlinson, 2017). These challenges are particularly relevant to art and design graduates. Creative occupations encompass diverse professional pathways, including design services, digital media, animation, and independent creative practice. Graduates may need to demonstrate their competencies through portfolios, applied projects, professional networks, and continuing technological development. The relationship between educational preparation and employability is therefore shaped not only by what graduates learn but also by their capacity to translate acquired competencies into professional opportunities. Human Capital Theory provides one explanation for this relationship by emphasizing education and training as investments in productive knowledge and skills (Becker, 1964). From this perspective, education quality and skill development may contribute to graduates' professional readiness. However, human capital alone may not fully explain how individuals navigate uncertain career transitions or respond to changing industry requirements. Graduate employability also involves psychological and career-related resources that influence how individuals recognize, develop, and mobilize their capabilities (Tomlinson, 2017). Career adaptability offers a complementary perspective. Grounded in Career Construction Theory, career adaptability comprises psychosocial resources associated with concern, control, curiosity, and confidence in managing career tasks and transitions (Savickas, 2005; Savickas & Porfeli, 2012). Previous research has linked career adaptability with adaptive career behaviours and employment-related outcomes (Rudolph et al., 2017). These associations suggest that graduates' perceived employability may relate not only to educational preparation but also to their capacity to explore opportunities, make career decisions, and adjust to professional change. Despite these complementary theoretical perspectives, an important question remains concerning how educational preparation and adaptive career resources are related within creative higher education. Education quality and skill development concern resources associated with graduates' learning experiences, whereas career adaptability concerns their perceived capacity to manage career development. Industry expectations introduce a further dimension by representing graduates' understanding of professional requirements. Examining these constructs together allows the study to distinguish educational and industry-related resources from adaptive career capacities and to investigate their direct and proposed indirect relationships with employability. This question is examined among art and design graduates in Northern China. The regional and disciplinary focus provides an opportunity to consider employability in a context where graduates may pursue different forms of creative work and encounter varied institutional and professional opportunities. The study does not assume that the region constitutes a homogeneous labour market or that its graduates experience uniformly greater employment difficulties than those elsewhere. Instead, it

investigates relationships among the specified constructs within the sampled population. Accordingly, this study addresses three objectives. First, it examines the direct associations of education quality, skill development, and industry expectations with perceived graduate employability. Second, it investigates the relationships of these constructs with career adaptability and the association between career adaptability and employability. Third, it evaluates the proposed indirect relationships through career adaptability and considers how qualitative accounts of curriculum relevance, professional skill requirements, and career transitions contextualize the quantitative findings. The study contributes to the literature in two ways. Theoretically, it brings Human Capital Theory and Career Construction Theory into a common analytical framework to distinguish acquired educational resources from adaptive career capacities. Contextually, it examines these relationships among art and design graduates in Northern China, while incorporating perspectives from graduates, educators, and employers. The study's contribution is therefore an integrated, discipline-specific examination of perceived employability rather than a claim that the proposed relationships constitute established causal mechanisms. The analysis draws on a cross-sectional survey of 400 graduates and 30 semi-structured interviews. Because cross-sectional data cannot establish temporal ordering, the proposed indirect pathways are interpreted as statistical relationships rather than causal mediation. Moreover, discrepancies in the available indirect-effect coefficients prevent confirmation of their statistical significance. These qualifications are essential to maintaining an interpretation proportionate to the evidence.

2. Theoretical Background and Hypothesis Development

2.1 Educational Preparation and Graduate Employability

Graduate employability is a multidimensional construct involving the capabilities and resources individuals perceive as relevant to obtaining and navigating employment opportunities. The USEM framework identifies understanding, skills, efficacy beliefs, and metacognition as interconnected elements of employability development (Knight & Yorke, 2004). More recent measurement research similarly supports conceptualizing perceived employability as multidimensional rather than equating it with employment status (Bennett & Ananthram, 2022). Human Capital Theory explains the relevance of educational preparation by treating education and training as investments in productive knowledge and competencies (Becker, 1964). Within art and design education, education quality may encompass curriculum relevance, teaching, and opportunities for applied learning, whereas skill development concerns the professional and transferable competencies graduates acquire. These constructs are related but conceptually distinct: favourable educational experiences do not necessarily imply that graduates possess every competency required in creative employment. Industry expectations introduce an additional dimension. Unlike education quality and skill development, this construct concerns perceived occupational requirements and graduates' understanding of their relevance. Its interpretation depends on the measurement items: awareness of or alignment with employer requirements differs from perceptions that those requirements are excessively demanding. In the present model, industry expectations are understood provisionally as perceived professional requirements and alignment with them.

The graduate capital perspective further suggests that educational resources acquire value through their interaction with professional identities, networks, and labour market opportunities (Tomlinson, 2017). Accordingly, this study proposes positive associations between perceived employability and education quality, skill development, and industry expectations.

H1: Education quality is positively associated with perceived graduate employability.

H2: Skill development is positively associated with perceived graduate employability.

H3: Industry expectations are positively associated with perceived graduate employability.

2.2 Career Adaptability as an Adaptive Career Resource

Career Construction Theory emphasizes the psychosocial resources individuals use to manage occupational development and transitions (Savickas, 2005). Career adaptability is commonly conceptualized through concern, control, curiosity, and confidence, reflecting preparation for future career tasks, responsibility for decisions, exploration of possibilities, and confidence in addressing challenges (Savickas & Porfeli, 2012). Career adaptability is conceptually different from disciplinary knowledge or technical competence. It concerns graduates' capacity to plan, explore, decide, and adjust when occupational circumstances change. A meta-analysis identified associations between career adaptability and career-related adaptive responses and outcomes (Rudolph et al., 2017). More recently, Azalea et al. (2026) reported differences in the relationships between career adaptability and perceived future employability among employed and unemployed graduates, reinforcing the importance of employment context. For art and design graduates, these resources may be relevant when navigating portfolio-based recruitment, changing technologies, project-based work, and diverse occupational pathways. Career adaptability is therefore expected to be positively associated with perceived employability. Educational experiences may also be associated with adaptive career resources. Relevant curricula can provide opportunities for exploration and career planning, while competency development may strengthen confidence in responding to unfamiliar professional demands. Awareness of industry expectations may similarly encourage graduates to identify development needs and reconsider career strategies. Evidence concerning Chinese higher education students suggests that both personal and contextual resources are associated with career adaptability (Zhang et al., 2025). Nevertheless, the present cross-sectional design cannot establish that educational experiences cause adaptability to develop.

H4: Career adaptability is positively associated with perceived graduate employability.

H5: Education quality is positively associated with career adaptability.

H6: Skill development is positively associated with career adaptability.
H7: Industry expectations are positively associated with career adaptability.

2.3 Proposed Indirect Relationships and Conceptual Framework

Integrating Human Capital Theory with Career Construction Theory offers a basis for distinguishing the resources developed through education from those used to navigate career transitions. Education quality and skill development represent aspects of educational preparation; industry expectations represent perceived professional requirements; and career

adaptability represents adaptive career resources. This distinction supports examining whether career adaptability statistically connects educational and industry-related factors with perceived employability. Graduates who report stronger educational preparation may also report greater adaptive capacity, which may, in turn, be associated with stronger employability perceptions. Likewise, understanding professional expectations may relate to both career adaptability and perceived employability. Recent research has examined career adaptability as an intermediary construct in graduates' career development, including relationships involving personal resources and career motivation (Lin et al., 2024). However, evidence concerning different predictors or outcomes does not establish the indirect relationships proposed here. The study therefore tests three specific hypotheses:

H8: Career adaptability statistically mediates the relationship between education quality and perceived graduate employability.

H9: Career adaptability statistically mediates the relationship between skill development and perceived graduate employability.

H10: Career adaptability statistically mediates the relationship between industry expectations and perceived graduate employability.

Figure 1 illustrates the proposed conceptual framework integrating Human Capital Theory and Career Construction Theory. Education quality (EQ), skill development (SD), and industry expectations (IE) are specified as predictors of both career adaptability (CA) and perceived graduate employability (EMP). The framework proposes direct positive relationships between the three explanatory constructs and employability (H1–H3), as well as a positive relationship between career adaptability and employability (H4). Education quality, skill development, and industry expectations are also hypothesized to be positively associated with career adaptability (H5–H7). Additionally, career adaptability is proposed as an intermediary variable linking each explanatory construct to perceived employability (H8–H10). These indirect relationships represent theoretical hypotheses requiring statistical verification rather than established mediating effects. The framework therefore distinguishes educational and industry-related resources from adaptive career capacities while examining their relationships with graduates' perceptions of employability.

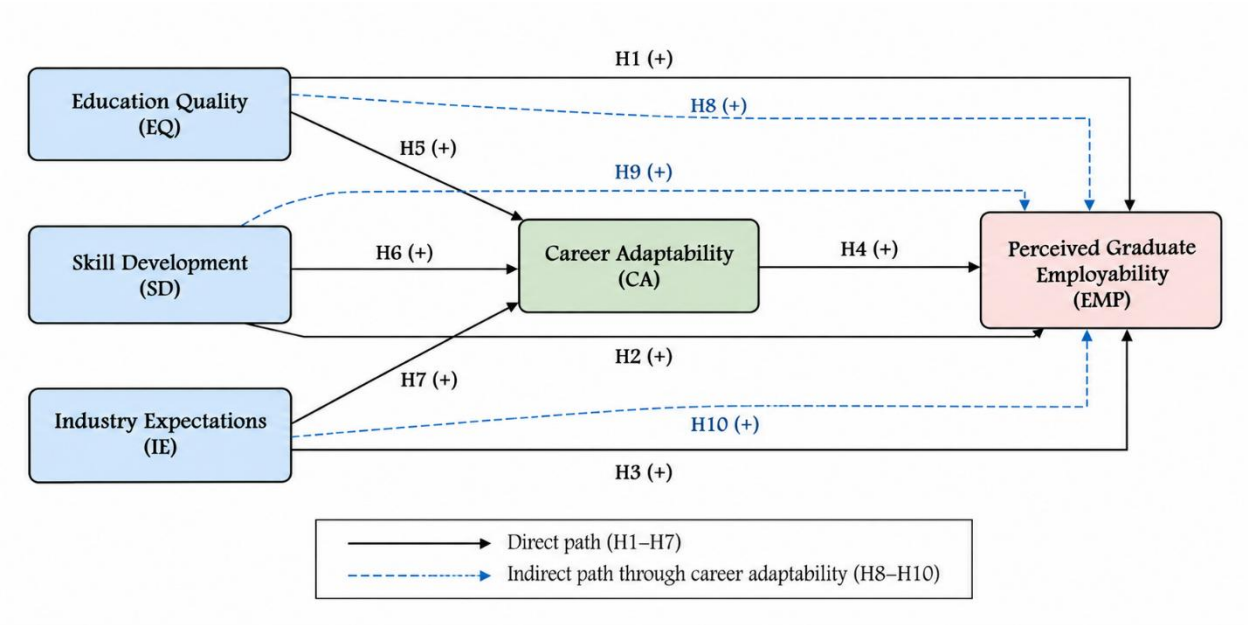


Figure 1. Proposed conceptual framework linking educational preparation, career adaptability, and perceived graduate employability**.**

The framework's intended contribution is to examine educational preparation and adaptive career resources jointly within creative higher education. Its value lies in distinguishing these related constructs and assessing their associations in a discipline-specific context, rather than claiming that combining established theories constitutes a new theory. Because the data are cross-sectional, the proposed indirect pathways cannot establish causal mediation. Furthermore, inconsistencies in the available indirect-effect estimates mean that their statistical significance must remain unresolved pending verification of the original bootstrap results.

3 Research Methodology

3.1 Research Design and Participants

This study employed a cross-sectional survey supplemented by semi-structured interviews to examine the relationships among education quality, skill development, industry expectations, career adaptability, and perceived graduate employability. The quantitative component investigated associations among the five constructs, while the qualitative component provided contextual insights into graduates' educational preparation and career transitions. The study focused on graduates of art and design programmes in Northern China, covering Beijing, Tianjin, Hebei, Liaoning, Jilin, Heilongjiang, Inner Mongolia, and Shandong. The quantitative sample comprised 400 graduates from disciplines including graphic design, fashion design, industrial design, multimedia arts, and animation. Participants were recruited through university and alumni networks, academic departments, graduate associations, and online communication platforms. The questionnaire was distributed using Wenjuanxing and circulated through WeChat and related networks. Given the absence of a documented probability-based sampling frame and random selection procedure, recruitment is classified as nonprobability sampling. The sample therefore cannot be assumed to represent all art and design graduates in Northern China. The qualitative component involved 30 interview participants: 20 graduates, five educators, and five employers or creative industry

representatives. Their perspectives were used to explore curriculum relevance, professional competencies, employment barriers, and adaptive career behaviours. The available documentation did not establish the complete recruitment process, interview duration, or evidence of thematic saturation.

3.2 Measures and Data Collection

The structured questionnaire measured five reflective latent constructs: education quality (EQ), skill development (SD), industry expectations (IE), career adaptability (CA), and perceived graduate employability (EMP). Each construct was represented by five indicators, yielding 25 measurement items. Responses were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Education quality captured graduates' perceptions of curriculum provision, teaching, and educational preparation. Skill development concerned perceived acquisition of professional and transferable competencies. Industry expectations represented perceived professional requirements and their relationship to graduates' preparation. Career adaptability captured career-related psychosocial resources, while employability measured respondents' perceived employment-related capabilities and readiness.

The conceptualization of career adaptability was informed by Career Construction Theory, particularly concern, control, curiosity, and confidence (Savickas & Porfeli, 2012). However, the five indicators used in this study should not be equated with the complete standardized Career Adapt-Abilities Scale. Likewise, the employability measure concerns self-reported perceptions rather than objectively verified employment outcomes. The questionnaire was prepared in English and Mandarin Chinese. Expert review and pilot testing were reported as part of instrument development, although the available documentation did not provide sufficient detail to reproduce the pilot analysis or assess translation equivalence. The exact wording of the industry expectations indicators also requires confirmation because awareness of employer requirements, perceived alignment, and perceived difficulty represent different conceptual meanings. Survey responses were collected electronically and prepared for statistical analysis. The original recruitment totals, response rate, and detailed screening frequencies were unavailable. Consequently, the analytical sample of 400 is reported without an independently verified participant flow.

3.3 Quantitative Analysis

The quantitative analysis employed IBM SPSS Statistics for preliminary descriptive analysis and SmartPLS 4 for partial least squares structural equation modelling (PLS-SEM). PLS-SEM was used to examine the measurement properties of the five latent constructs and estimate the specified structural relationships (Hair et al., 2019). Measurement model assessment considered standardized indicator loadings, Cronbach's alpha, composite reliability, and average variance extracted (AVE). Discriminant validity was assessed through the heterotrait–monotrait ratio of correlations (HTMT), an established criterion for evaluating empirical distinctiveness among reflective constructs (Henseler et al., 2015). The structural model specified education quality, skill development, and industry expectations as predictors of career adaptability and perceived employability. Career adaptability was additionally specified as a predictor of employability. Seven direct relationships and three proposed indirect pathways were evaluated.

The analysis reported standardized path coefficients, coefficients of determination (R^2), and the standardized root mean square residual (SRMR). Statistical testing was described as using 5,000 bootstrap subsamples. However, the original respondent-level dataset, complete SmartPLS output, and bootstrap confidence intervals were unavailable for independent verification. A specific inconsistency was identified in the reported mediation results. In the specified single-mediator model, each indirect point estimate should equal the product of its component path coefficients. The reported component coefficients implied indirect estimates of approximately 0.081 for EQ → CA → EMP, 0.073 for SD → CA → EMP, and 0.078 for IE → CA → EMP. These differed from the separately reported indirect coefficients.

Accordingly, the indirect estimates presented in this article are algebraic reconstructions rather than independently reproduced SmartPLS results. Their statistical significance cannot be established without the corresponding bootstrap confidence intervals. The proposed mediation hypotheses are therefore treated as unresolved. Moreover, the cross-sectional design does not permit causal interpretation of the specified pathways.

3.4 Qualitative Analysis and Integration

Semi-structured interviews explored participants' experiences of educational preparation, professional skill requirements, employment barriers, industry engagement, and career adjustment. The interview material was analysed thematically, with ATLAS.ti reported as supporting the organization and coding of qualitative data. Four themes were identified: curriculum mismatch and skill gaps, employment barriers, internships and industry collaboration, and adaptive career behaviours. Thematic analysis provided a framework for interpreting recurring patterns in the interview material (Braun & Clarke, 2006). However, the complete transcripts and coding records were unavailable for independent examination. Quantitative and qualitative findings were integrated through interpretive comparison. Interview themes were considered alongside the structural relationships to identify correspondence, contextual explanations, and issues not captured by the model. Qualitative evidence was not treated as proof of statistical significance or mediation.

3.5 Ethical Considerations and Methodological Boundaries

The study documentation reported institutional ethical approval, informed participation, confidentiality, and secure handling of research information. The approving institution and ethics reference number should be confirmed against the original approval record before submission. Several limitations inform interpretation. Nonprobability recruitment restricts population-level generalization, while self-reported measures introduce potential common-method and response-related bias. The absence of complete measurement output limits independent assessment of discriminant validity. Finally, the unavailable original dataset and inconsistent indirect-effect results prevent reproducible confirmation of the proposed mediation relationships. These constraints are addressed explicitly in reporting and interpreting the findings.

4. Results and Findings

4.1 Sample Characteristics

The quantitative analysis included 400 art and design graduates from Northern China. Women represented 57.5% of respondents, and the largest age group was 24–26 years (51.3%). Most respondents held bachelor's degrees (80.0%). The sample covered several creative disciplines, with graphic design and fashion design accounting for the largest proportions. At the time of the survey, 42.5% reported full-time employment and 22.5% reported part-time or freelance work (Table 1).

Table 1: Selected sample characteristics (N = 400)

Characteristic	Category	n (%)
Gender	Female	230 (57.5)
	Male	170 (42.5)
Age	21–23 years	120 (30.0)
	24–26 years	205 (51.3)
	27 years or older	75 (18.8)
Qualification	Bachelor's degree	320 (80.0)
	Master's degree	80 (20.0)
Employment status	Full-time employment	170 (42.5)
	Part-time/freelance	90 (22.5)
	Unemployed and seeking work	85 (21.3)
	Further education	35 (8.8)
	Other	20 (5.0)

Note. Percentages are based on the reported sample size and rounded to one decimal place. Employment status is descriptive and is distinct from the perceived employability construct.

4.2 Descriptive Statistics and Measurement Assessment

All five constructs had reported mean scores above the midpoint of the five-point response scale. Career adaptability had the highest mean (M = 3.92), followed by education quality (M = 3.87) and perceived employability (M = 3.84). Skill development had the lowest mean (M = 3.69). These differences are descriptive and were not subjected to inferential comparisons. The reported Cronbach's alpha coefficients ranged from .845 to .888, composite reliability values from .883 to .914, and average variance extracted (AVE) from .617 to .672. These values satisfy commonly applied criteria for internal consistency and convergent validity in reflective measurement models (Hair et al., 2019). However, the complete numerical HTMT matrix was unavailable, preventing independent confirmation of discriminant validity.

Table 2: Descriptive statistics and reported measurement properties

Construct	M	SD	α	CR	AVE

Education quality	3.87	0.76	.862	.891	.621
Skill development	3.69	0.81	.877	.905	.654
Industry expectations	3.73	0.74	.845	.883	.617
Career adaptability	3.92	0.69	.872	.901	.648
Perceived employability	3.84	0.72	.888	.914	.672

Note. M = mean; SD = standard deviation; α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted. Each construct comprised five indicators. Values are reported statistics and were not independently recalculated.

4.3 Structural Relationships and Explanatory Power

The reported structural model identified positive direct relationships between education quality, skill development, industry expectations, and perceived employability. Career adaptability also showed a positive association with employability (β = .301), representing the largest standardized direct coefficient among its four predictors. Education quality (β = .268), skill development (β = .244), and industry expectations (β = .259) were positively associated with career adaptability. All seven direct paths were reported as statistically significant at $p < .001$ (Table 3). These significance levels could not be independently reproduced because the original bootstrap output was unavailable. The reported coefficients of determination were $R^2 = .58$ for career adaptability and $R^2 = .62$ for perceived employability. The standardized root mean square residual was .068. These indices describe the reported model's in-sample explanatory performance and approximate fit; they do not establish causal relationships or out-of-sample predictive accuracy.

Table 4: Reported direct paths and reconstructed indirect relationships

Hypothesis	Relationship	β	t	Reported p
H1	EQ → EMP	.232	4.18	< .001
H2	SD → EMP	.198	3.75	< .001
H3	IE → EMP	.214	3.91	< .001
H4	CA → EMP	.301	5.33	< .001
H5	EQ → CA	.268	4.01	< .001
H6	SD → CA	.244	3.88	< .001
H7	IE → CA	.259	3.95	< .001
H8	EQ → CA → EMP	.081*	—	Not verified
H9	SD → CA → EMP	.073*	—	Not verified
H10	IE → CA → EMP	.078*	—	Not verified

Note. EQ = education quality; SD = skill development; IE = industry expectations; CA = career adaptability; EMP = perceived graduate employability. Direct coefficients, t statistics, and p

values are reported results. *Indirect coefficients are algebraically reconstructed from the reported component paths, not independently estimated or bootstrapped effects. Their statistical significance remains unverified.*

4.4 Assessment of the Proposed Indirect Relationships

The three proposed indirect relationships through career adaptability require particular caution. In the specified single-mediator model, each indirect point estimate is calculated as the product of the corresponding predictor-to-mediator coefficient and mediator-to-outcome coefficient. The reported component paths imply an indirect estimate of .081 for education quality (.268 × .301), .073 for skill development (.244 × .301), and .078 for industry expectations (.259 × .301). These values differ from the separately reported indirect coefficients of .121, .109, and .115, respectively. The reconstructed values are positive and consistent with the hypothesized directions. However, their sampling uncertainty cannot be determined from the available component coefficients. Because the original bootstrap confidence intervals and associated output were unavailable, H8–H10 cannot be classified as statistically supported or rejected. The analysis therefore identifies theoretically plausible indirect associations but does not establish statistically significant mediation.

4.5 Qualitative Findings and Integration

The qualitative component comprised 30 interviews involving 20 graduates, five educators, and five employers. Four principal themes were reported. First, curriculum mismatch and skill gaps reflected concerns about the relationship between university learning and contemporary creative industry requirements, particularly practical and digital competencies. These accounts provided context for the positive associations involving education quality and skill development while suggesting that favourable overall educational evaluations may coexist with perceived deficiencies in professional preparation. Second, employment barriers included limited workplace experience, insufficient professional networks, and difficulties accessing suitable opportunities. These accounts highlighted contextual constraints not directly represented in the structural model. Third, internships and industry collaboration were identified as valuable opportunities for developing practical competencies, understanding workplace expectations, and demonstrating professional capabilities. However, internship participation and quality were not estimated as separate predictors in the quantitative model. Fourth, adaptive career behaviours included independent learning, career exploration, and flexibility in responding to changing occupational requirements. These narratives were conceptually consistent with the positive reported association between career adaptability and perceived employability. Taken together, the quantitative and qualitative findings suggest that graduates' perceived employability is associated with educational preparation, perceived industry requirements, and adaptive career resources. The interview themes additionally emphasize the relevance of practical experience, professional networks, and access to employment opportunities. Nevertheless, the qualitative evidence cannot verify the statistical significance of the proposed indirect relationships, and the absence of complete interview transcripts limits independent assessment of the reported themes.

5. Discussion

5.1 Educational Preparation and Perceived Employability

This study examined the relationships among education quality, skill development, industry expectations, career adaptability, and perceived employability among art and design graduates in Northern China. The reported results indicated positive direct associations between all three explanatory constructs and perceived employability. These findings are consistent with Human Capital Theory, which emphasizes the contribution of education and training to the development of productive capabilities (Becker, 1964). Education quality exhibited the largest direct coefficient among the three educational and industry-related predictors (β = .232), followed by industry expectations (β = .214) and skill development (β = .198). Although the differences between these coefficients were not statistically compared, the findings suggest that graduates' perceptions of employability are related to multiple aspects of professional preparation rather than technical competencies alone. The qualitative findings add an important qualification. Interview themes concerning curriculum mismatch and professional skill gaps indicate that generally positive evaluations of educational experiences may coexist with concerns about their practical relevance. This distinction supports a multidimensional understanding of employability in which disciplinary knowledge, professional competencies, and opportunities to apply learning are interconnected (Knight & Yorke, 2004; Tomlinson, 2017). The positive relationship involving industry expectations requires more cautious interpretation. Awareness of professional requirements and perceived alignment with employer expectations are conceptually different from perceptions that occupational demands are excessively difficult. Because the precise wording of the relevant indicators remains to be verified, the findings should not be interpreted as demonstrating that greater employer demands improve employability. Rather, they indicate a positive association between the measured industry-related construct and graduates' employability perceptions.

5.2 Career Adaptability and Theoretical Contribution

Career adaptability showed the largest reported standardized direct coefficient among the predictors of perceived employability (β = .301). Education quality, skill development, and industry expectations were also positively associated with career adaptability. These findings are consistent with Career Construction Theory, which identifies concern, control, curiosity, and confidence as resources relevant to managing career development and transitions (Savickas, 2005; Savickas & Porfeli, 2012). The qualitative accounts of independent learning, career exploration, and professional flexibility provide contextual illustrations of these adaptive resources. For art and design graduates, such capabilities may be relevant when responding to technological change, portfolio-based recruitment, project-based employment, and diverse professional pathways. Previous research has likewise identified associations between career adaptability and adaptive career responses and outcomes (Rudolph et al., 2017). The study's theoretical contribution lies in examining educational preparation and adaptive career resources within an integrated framework. Human Capital Theory helps explain the relevance of acquired knowledge and competencies, whereas Career Construction Theory directs attention to the psychosocial resources involved in navigating occupational transitions. Their integration distinguishes what graduates perceive themselves as having acquired through education from how they perceive their capacity to manage career-related challenges. Nevertheless, the findings do not establish that career adaptability transmits the relationships between educational preparation and employability. Although the reconstructed indirect point estimates

were positive, inconsistencies in the reported coefficients and the absence of verifiable bootstrap confidence intervals prevent confirmation of statistically significant mediation. Accordingly, career adaptability should be interpreted as a theoretically relevant and empirically associated construct rather than a confirmed mediating mechanism.

5.3 Implications for Art and Design Education

The findings suggest several priorities for institutions offering art and design programmes. First, curriculum development should consider the relationship between disciplinary learning and contemporary professional requirements, including emerging digital practices and applied project experience. Second, skill development should extend beyond technical proficiency to include communication, collaboration, portfolio presentation, and continued professional learning. Third, universities may benefit from strengthening meaningful engagement with creative industries through internships, employer-informed projects, and opportunities for professional networking. The qualitative findings identified these experiences as valuable, although the present study did not estimate their independent effects on employability. Fourth, career development provision should address adaptive resources alongside conventional employment preparation. Activities involving career exploration, reflective planning, decision-making, and responses to occupational uncertainty may complement disciplinary training. These recommendations are consistent with the observed associations but should not be interpreted as interventions whose effectiveness was demonstrated by this study. The interview themes also highlight the limits of approaches focused exclusively on individual preparation. Restricted professional networks, limited experience, and unequal access to employment opportunities may influence career transitions independently of graduates' perceived competencies. Institutional employability strategies should therefore consider both graduate development and access to professional opportunities.

5.4 Limitations and Future Research

Several limitations constrain interpretation. The cross-sectional design prevents conclusions about temporal ordering or causality, while nonprobability sampling limits generalization beyond the participating graduates. The use of self-reported measures introduces potential common-method bias and means that the outcome represents perceived employability rather than independently verified employment success. Measurement interpretation also requires caution. The complete indicator wording and discriminant validity results were unavailable for independent assessment, particularly for the industry expectations construct. Moreover, the original statistical dataset and bootstrap output were unavailable, leaving the proposed indirect relationships unverified. The qualitative findings provided contextual insights, but the absence of complete transcripts and coding records restricted independent assessment of the thematic analysis. Future studies should employ longitudinal designs, validated and fully documented measurement instruments, and reproducible bootstrap analyses to investigate the proposed indirect relationships. Incorporating independently verified employment outcomes and examining variation across creative disciplines, institutions, and employment arrangements would further clarify the relationship between educational preparation, career adaptability, and professional transitions.

6. Conclusion

This study examined the relationships among education quality, skill development, industry expectations, career adaptability, and perceived employability among art and design graduates in Northern China. The findings indicated positive direct associations between educational and industry-related factors and perceived employability, while career adaptability exhibited the largest reported standardized direct coefficient among the predictors of employability. The study contributes to graduate employability research by integrating educational preparation and adaptive career resources within a common analytical framework. Its findings suggest that graduates' perceptions of professional readiness are associated not only with the quality of their educational experiences and acquired competencies but also with their capacity to navigate changing career requirements. The qualitative evidence further highlighted curriculum mismatch, employment barriers, and the importance of practical learning and industry engagement. These findings suggest that art and design institutions should consider curriculum relevance, professional skill development, career guidance, and meaningful industry collaboration as complementary priorities. Employability development should address both graduates' capabilities and their opportunities to apply those capabilities in professional settings. However, the proposed indirect relationships through career adaptability could not be statistically confirmed because of inconsistencies in the available mediation coefficients and the absence of verifiable bootstrap confidence intervals. The cross-sectional design, nonprobability sampling, and reliance on self-reported measures further limit causal interpretation and generalizability. Future research should use longitudinal data, independently verified employment outcomes, and reproducible mediation analyses to examine how educational preparation and career adaptability relate to graduates' professional transitions. Overall, the study provides context-specific evidence supporting a multidimensional approach to employability development in creative higher education.

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