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Professional Identity and Talent Development in Tourism Management under New Liberal Arts and GIUR Collaboration

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ABSTRACT

Against the backdrop of the rise of the “New Liberal Arts” and the collaborative integration of government, industry, academia, and research institutions, this study examines pressing issues such as the weak professional identity among tourism management students and the disconnect between talent development models and actual industry needs. The theoretical framework adopted in this study encompasses institutional support, perceptions of classroom atmosphere, professional identity, and professional adaptability, and analyzes the underlying mechanisms linking these constructs. Between December 2024 and September 2025, the research team conducted an online survey, collecting a total of 645 valid responses. The researchers used SPSS 26.0 and Smart PLS 4.0 software to perform reliability and validity tests, path analysis, and hypothesis testing. The results indicate that all dimensions of institutional support and perceived classroom atmosphere are significantly and positively associated with professional identity, with academic support and teacher-student relationships exhibiting relatively stronger predictive associations. Furthermore, a significant positive association exists between professional identity and career adaptability; while some dimensions exert indirect associations through professional identity as a mediating variable, others demonstrate a direct positive association with career adaptability. Drawing on the concept of the “New Liberal Arts” and the integration of government, industry, academia, and research

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institutions, this study makes a significant contribution to the theoretical literature on current tourism management students. It provides empirical evidence and practical insights for institutional development, the refinement of existing support systems, the creation of a positive classroom atmosphere, and the enhancement of students' professional identity and adaptability.

Keywords: New Liberal Arts; Institutional Support; Classroom Climate; Professional Identity; Career Adaptability

1. Introduction

1.1. Research Background & Importance

In the contemporary era characterized by globalization and informatization, the field of higher education is undergoing profound transformations. To meet the emerging demands for talent, the initiative of "New Liberal Arts" construction has emerged, emphasizing interdisciplinary integration and the combination of theory with practice. This paradigm shift is dedicated to cultivating compound talents endowed with an innovative spirit and practical capabilities. Concurrently, the "Government–Industry–University–Research" (GIUR) collaborative interaction model has provided a novel opportunity for advancing higher education. By fostering close cooperation among the government, enterprises, universities, and research institutions, this model facilitates resource sharing and leverages complementary advantages, thereby significantly enhancing the quality of talent development.

Within this context, research concerning talent development models in the field of Tourism Management holds particular significance. As a discipline that inherently combines theoretical depth with practical application, Tourism Management must align closely with industry needs. However, the current training of tourism management professionals faces a number of genuine challenges. The curriculum is out of step with industry practice, and student placements are often confined to low-skilled service sectors, making it difficult for them to gain exposure to emerging fields such as smart tourism and the integration of culture and tourism; students have a vague understanding of their career prospects and generally low professional identity, leading to a lack of motivation to study and a high propensity to change careers; furthermore, industry-education collaboration mechanisms are largely superficial, with insufficient depth and continuity in corporate involvement in talent development, leaving students lacking the interdisciplinary

skills and innovative thinking required to navigate the industry's digital transformation upon graduation. These challenges severely constrain the quality of talent development in tourism management programmes. The establishment of a new liberal arts program offers a robust framework for addressing the specific challenges faced by this major, making it a critical agenda for reform within the higher education sector.

It should be noted that, due to the difficulty in obtaining historical administrative data on the same study group before the New Liberal Arts reform, this study did not employ a strict pre-post design. Instead, we focus on the current status of students within this post-reform educational ecosystem. Our objective is to capture the immediate impact of the current GIUR collaborative environment on student perceptions, rather than to measure incremental changes over time. Therefore, the sample for this study consists of tourism management students within the context of the New Liberal Arts initiative. By surveying the perceptions of students currently in this educational environment, we aim to reveal the current impact of existing industry-education integration practices on students' career development.

1.2. Theoretical Basis and Literature Review

1.2.1. Theoretical Basis: Government–Industry–University–Research Collaborative Interaction Theory

Government–Industry–University–Research–Application (GIURA) collaborative education refers to a deeply integrated educational ecosystem formed by multiple stakeholders—including government, industry, universities and research institutions—centred on talent development objectives, through the integration of resources, complementary strengths and coordinated mechanisms^[1]. In recent years, scholars both domestically and internationally have explored the concept's implications, operational mechanisms and practical pathways from various perspectives, giving

rise to a diverse range of theoretical viewpoints.

Park and Leydesdorff, drawing on organizational sociology, emphasize that universities and government research institutions should enhance organizational flexibility and accumulate social capital by strengthening cooperation with industrial R&D partners. They argue that the core of collaboration lies in breaking down organizational boundaries to facilitate the flow of knowledge within a tripartite network^[2]. In contrast, Zhou and Wang, adopting an integrated perspective on policy and industrial practice, interpret the Government–Industry–Academia–Research–Application model as a vertical integration spanning the policy level, user demand level, industrial development level, talent cultivation level, and scientific research level. They emphasize multi-level inheritance and development, with this perspective placing greater emphasis on policy guidance within China’s domestic context^[3]. Anatan, meanwhile, focuses on the issue of conceptual translation in knowledge transfer, examining how effective knowledge conversion can be achieved between industry and academia. She points out that differences in cognitive models, goal orientation and temporal rhythms between the two sides constitute the primary obstacles to collaboration, and therefore necessitate the establishment of a ‘cross-boundary translation’ mechanism^[4]. In contrast, Cheng et al., approaching the subject from the perspective of practical education, have explored the specific implementation methods, outcomes and experiences of collaboration among government, industry, academia, research and end-users. They place particular emphasis on the practical pathways for implementing school-local government cooperation in practical teaching, demonstrating a strong operational orientation^[5]. Chen further proposed a governance model for industry-university colleges characterized by “deep integration and mutual prosperity”, clarifying the role of enterprises as the primary agents of talent development and advocating the construction of a modern governance structure based on “multi-party collaboration, joint development and shared management”. This perspective is more systematic and institutionalized in terms of organizational mechanisms than the aforementioned studies^[6]. Chiu et al., meanwhile, utilized a real-world case study of artificial intelligence curriculum development to demonstrate the specific operational processes of quadripartite collaboration between

government, universities, secondary schools and industry, thereby validating the feasibility of the Government–Industry–Academia–Research–Application model in curriculum development^[7]. While existing research varies in terms of analytical depth, focus and methodology, there is a general lack of examination of the micro-mechanisms of Government–Industry–Academia–Research–Application collaboration from the perspective of individual student perceptions; this is precisely the starting point of this study.

In summary, collaborative education involving government, industry, academia, research and end-users has evolved from an initial conceptual advocacy into a multi-dimensional theoretical framework encompassing policy design, organizational change, knowledge management and practical implementation. However, existing research generally overlooks the crucial aspect of learners’ subjective experiences. Consequently, this study treats Government–Industry–Academia–Research–Practice collaboration as a macro-level context, whilst focusing on operational variables within higher education institutions to explore how students’ professional identity and career adaptability are shaped within a collaborative education environment. This not only responds to the academic community’s call for an examination of ‘micro-mechanisms’ but also provides a testable empirical pathway for the cultivation of tourism management talent within the context of the New Liberal Arts.

1.2.2. Concept and Connotation of New Liberal Arts Construction

The development of the New Liberal Arts has become a key issue in global higher education reform, with its meaning being interpreted and developed in different ways across various countries and social contexts.

The origins and definition of the New Liberal Arts in the United States. The concept of the New Liberal Arts was first introduced to the US education sector by Dr. Lori Vartotta, President of Hiram College in Ohio, to establish a new model for liberal arts education in American universities^[8]. In terms of definition, New Liberal Arts education emphasizes the integration of new technologies into humanities and social sciences courses such as philosophy, literature and languages—that is, ‘liberal arts plus new technologies’. Its core lies in enriching the extracurricular experiences of first-generation university students, strengthening the cultivation

of students' practical skills, and improving their employability. This definition reflects the pragmatic orientation of the development of the New Liberal Arts in the United States, with a focus on technological empowerment and the direct enhancement of employability.

Reflection and Paradigm Reshaping of the New Liberal Arts in China. Unlike in the United States, the development of the New Liberal Arts in China stems from a profound reflection on the fragmentation of holistic knowledge in the technological age. Domestic scholars argue that the New Liberal Arts should advocate for the cross-disciplinary integration of knowledge boundaries and research methodologies between the humanities and social sciences and disciplines such as science, engineering, agriculture and medicine^[9]. Compared to traditional liberal arts, the 'new' in the New Liberal Arts does not lie in a simple update of knowledge content, but rather in the methods of classifying and categorizing knowledge, as well as the reconnection of relationships between different disciplinary fields. From the perspective of reforming knowledge production and scientific paradigms, the proposal of the New Liberal Arts has broken down traditional, mutually exclusive disciplinary boundaries and reshaped a new paradigm for the humanities characterized by commensurability. Furthermore, one of the key aspects of the New Liberal Arts initiative is to respond to and resolve the new challenges posed by the new era through the promotion of educational reform and the optimization of talent development structures^[10].

A comparison of Chinese and American scholars' interpretations of the New Liberal Arts reveals a core difference: the American New Liberal Arts emphasises 'technology-enabled employment', using new technologies to enhance students' practical skills and employment rates, and exhibits distinct market-responsive characteristics^[8]; whereas the Chinese New Liberal Arts stems from a philosophical reflection on the fragmentation of knowledge, emphasising a revolution in disciplinary paradigms and the reconstruction of holistic knowledge^[9,10]. Although the driving logic and objectives differ, research in both countries shares common shortcomings: most studies remain at the macro-level of concepts or curriculum structures, lacking micro-level mechanisms that explore how the New Liberal Arts influence professional identity and career adaptability from the perspective of individual students' perceptions. Therefore,

this study treats the New Liberal Arts as an institutional backdrop, focusing on operational variables such as internal institutional support and classroom atmosphere within higher education institutions, to provide empirical evidence for revealing students' professional development pathways under the New Liberal Arts paradigm.

1.2.3. Institutional Support

Institutional support is a key theoretical cornerstone for understanding student development in higher education. Building on the pioneering research of Pascarella and Terenzini, the influence of higher education institutions on students stems primarily from two core elements: student engagement and the support systems provided by the institution^[11]. Tinto further emphasizes that institutional support plays a decisive role in helping students adapt to university life and complete their studies^[12]. As research has deepened, scholars have progressively unpacked the specific dimensions of this support. Zhang and Liu identified four influencing factors: administrative services, university teaching, academic activities, and extracurricular activities^[13]; whilst Perna and Thomas's multi-level model of student success, and Tinto and Pusser's institutional action model, have incorporated these mechanisms into theoretical frameworks of student development, highlighting the systemic role of the educational environment in student development^[14]. The consensus in existing research indicates that institutional support is multi-dimensional, encompassing psychological support, learning assistance and the provision of living facilities, which together constitute the foundational environment for promoting student development.

However, against the backdrop of China's 'New Liberal Arts' initiative and the collaborative mechanisms between government, industry, academia and research, the essence of traditional 'institutional support' is undergoing a fundamental restructuring. While classical theories often view universities as closed systems, the collaboration between government, industry, academia and research requires breaking through the limitations of a single entity to construct an ecosystem-based support network, wherein government policy guidance, industry practice platforms, technological empowerment from research institutions, and the service systems of universities form a community of shared responsibility. Specifically, the concept of the 'New Liberal Arts' requires institutional support to transcend conventional pro-

vision at the administrative and psychological levels; it must proactively assume the role of fostering interdisciplinary integration and practical innovation.

1.2.4. Perception of Classroom Climate

As a key area of educational research, the theoretical origins of perceptions of classroom atmosphere can be traced back to the 1820s; however, for a long time, it failed to develop into an independent field of study. It was only with the impetus provided by social psychological theories of group dynamics that research in this area gradually began to focus on group interaction and norms. Over the past three decades, a systematic theoretical framework for perceptions of classroom atmosphere has been established, making it a central topic at the intersection of education and psychology. Scholars abroad have explored this topic from various perspectives. Haukoos and Penick^[15] define classroom atmosphere as the state of individual student characteristics, interpersonal interactions, and their integration with the class as a whole; Umali^[16] emphasises the crucial role of teacher-student bonds in learning engagement, noting that positive teacher-student relationships can significantly enhance students' engagement with learning materials; Khazen et al.^[17], through empirical research, revealed the predictive value of the interaction between three factors—gender, religious beliefs and participation in collaborative groups—in optimising classroom atmosphere; Berliana and Habiby^[18], drawing on environmental motivation theory, demonstrated the role of an open and interactive atmosphere in fostering student autonomy and subject interest; Shu et al.^[19] further noted that classroom atmosphere (CA) is a core driver of educational outcomes, and that a safe, respectful and growth-oriented environment can elicit students' optimal learning performance. Synthesizing existing research, although scholars' interpretations of the factors influencing perceptions of classroom atmosphere vary, the core focus lies on the three dimensions of peer relationships, teacher-student relationships and classroom organization, and there is widespread agreement on the positive effects of a positive atmosphere on student development.

1.2.5. Professional Identity

Professional identity, as a core element of an individual's self-identity and self-development, was first proposed by the renowned scholar E.H. Erikson. Academic research

on professional identity has yielded substantial findings, focusing primarily on its conceptual definition, measurement dimensions and influencing mechanisms. Regarding the conceptual definition of professional identity, the academic community has explored it from multiple perspectives. Abbott argues that professional identity is constructed upon a knowledge system and is profoundly influenced by the interactive relationships within professional communities^[20]; Salling Olesen, meanwhile, defines it as the sense of balance and coherence experienced by individuals in their professional lives^[21]. In terms of influencing mechanisms, research by Yang et al., based on identity commitment theory and social identity theory, found that professional identity is positively correlated with learning commitment, with teachers' professional identity and emotional resilience playing a partial mediating role^[22]. Liu et al. further suggest that higher education institutions should provide a more conducive academic environment and opportunities for professional practice, enhancing students' professional adaptability through emotional support and the fostering of a sense of belonging; their research deconstructs professional identity into variables such as professional interest, professional competence, career prospects and job satisfaction^[23]. Swickert's study of Juris Doctor (J.S.D.) candidates indicates that the unique nature of the legal profession, career development issues, academic interests, levels of peer support, satisfaction with the management system, and the learning environment are all key influencing factors^[24]. Roulston's research on social workers found that although most organizations provide high-quality placement opportunities, budget cuts may undermine the quality of supervision, thereby limiting the development of students' skills and professional identity^[25]. Research by Neumeister and Rinker on female university students, meanwhile, confirms that emerging professional identity is a key factor influencing academic achievement^[26].

In summary, existing research has largely focused on the connotations, dimensions and general influencing factors of professional identity; however, against the backdrop of China's 'New Liberal Arts' initiative, the logic underpinning the construction of professional identity is undergoing profound transformation. Traditional research has largely been confined to knowledge transmission and teacher-student interactions within higher education institutions^[20,23], whereas the 'New Liberal Arts' emphasize interdisciplinary inte-

gration and value-driven leadership, requiring students to identify not only with knowledge within a single discipline but also with the ability to solve complex social problems through interdisciplinary approaches. This implies that the connotation of professional identity must expand from knowledge acquisition to value creation. Furthermore, based on the theory of collaboration among government, industry, academia, research and application, the formation of professional identity is no longer merely a closed process within the university, but rather an open ecosystem involving multi-stakeholder collaboration. Although professional identity is often conceptualized as a multidimensional construct in the literature, this study chooses to treat it as a higher-order unidimensional variable. This approach is based on the holistic perspective proposed by Liu et al.^[23] and Neumeister and Rinker^[26]. In the context of tourism management education, we aim to explore students' holistic professional identity rather than analyzing specific dimensions in isolation. Furthermore, given the large number of latent variables in this study's model, adopting a unidimensional measurement helps improve model fit and reduce respondents' cognitive load, thereby ensuring data reliability.

1.2.6. Career Adaptability

Career adaptability refers to the psychosocial resources that individuals draw upon when facing career development challenges or major career transitions^[27]. As a core concept of career construction theory, Savickas and Porfeli define career adaptability as an individual's capacity to cope with current and anticipated career tasks, engage in occupational roles, and resolve career crises; it comprises four dimensions: career concern, career curiosity, career self-confidence, and career control^[28]. McArdle, adopting a perspective of human-environment interaction, points out that career adaptability should also encompass proactive personality traits and a 'boundaryless career' orientation, emphasizing the individual's tendency to exert a stabilizing influence when facing environmental changes^[29]. Fugate et al. further propose that career resilience is a key factor in an individual's career success, deconstructing it into three dimensions: career identity, personal resilience, and social and human capital. They argue that it is, in essence, a

work-oriented (proactive) adaptive capacity^[30]. Regarding the mechanisms underlying career adaptability, existing research primarily examines two levels: personal factors and environmental factors. Personal factors involve an individual's innate traits as well as acquired values, achievement motivation, self-efficacy, and core self-evaluation^[28]; environmental factors encompass the social, educational, and family environments. Individuals do not exist in isolation but are shaped by and respond to their external environment through continuous interaction.

In summary, whilst existing research has largely focused on the characteristics and dimensions of career adaptability, as well as its impact on outcome variables as an independent variable, there has been limited exploration of how external resources are transformed into an individual's career adaptability. Against the backdrop of the 'New Liberal Arts' initiative, the breaking down of disciplinary boundaries and the reconstruction of knowledge paradigms require individuals to possess stronger cross-disciplinary integration capabilities and complex problem-solving skills. This implies that the concept of career adaptability must be expanded from traditional job matching to dynamic adaptation. Students need not only to adapt to a single career path but also to possess the psychological resources to rapidly adjust their cognition and behaviour in interdisciplinary and cross-sectoral contexts. Given that this study focuses on examining the overall effects of institutional support and perceived class atmosphere on career adaptability, and drawing on the holistic measurement approach of the 12-item Chinese short-form CAAS-sf scale developed by Yu et al.^[31] based on the research of Cai et al., Maggiori, Rossier and Savickas, this study measures career adaptability as a single-dimensional variable.

1.2.7. Hypothesis Development

Based on the theoretical discussions above and the specific characteristics of tourism management education under the New Liberal Arts, we propose the following hypotheses. The selection of these paths reflects the unique context of tourism programs in China, where industry-education integration and the dual-mentor system are particularly emphasized (Figure 1):

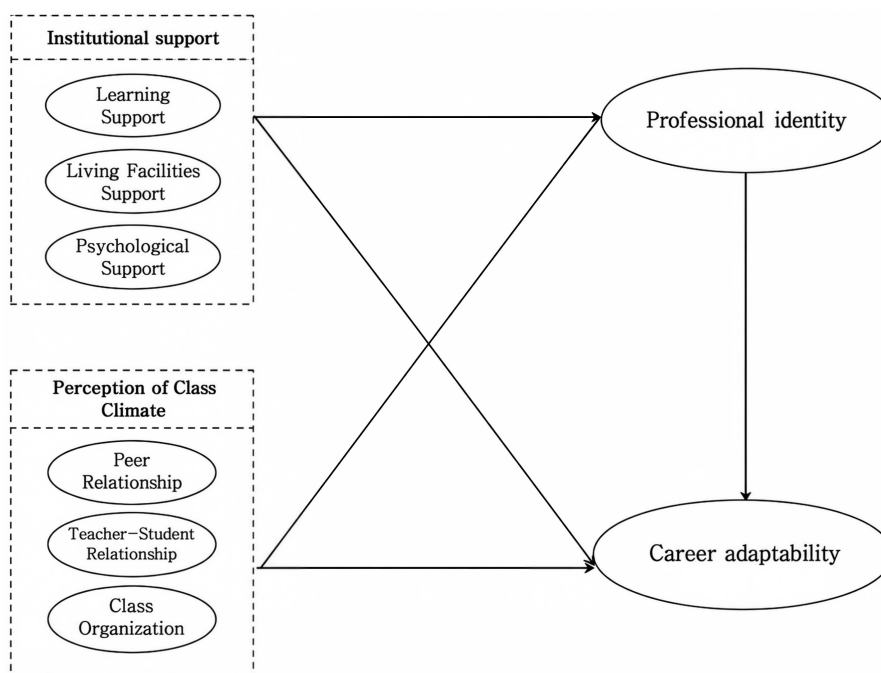


Figure 1. Theoretical model diagram.

H1a. Students' perceived academic support has a significant positive effect on their professional identity.

H1b. Students' perceived psychological support has a significant positive effect on their professional identity.

H1c. Students' perceived support regarding living facilities has a significant positive effect on their professional identity.

H2a. Students' perceptions of peer relationships have a significant positive effect on their professional identity.

H2b. Students' perceptions of teacher-student relationships have a significant positive effect on their professional identity.

H2c. Students' perceptions of classroom organization have a significant positive effect on their professional identity.

H3a. Students' perceived academic support has a significant positive effect on their career adaptation.

H3b. Students' perceived psychological support has a significant positive effect on their career adaptation.

H3c. Students' perceived support regarding living facilities has a significant positive effect on their career adaptation.

H4a. Students' perceived peer relationships have a significant positive effect on their career adaptability.

H4b. Students' perceived teacher-student relationships have

a significant positive effect on their career adaptability.

H4c. Students' perceived classroom organization has a significant positive effect on their career adaptability.

H5. Students' professional identity has a significant positive impact on their career adaptability.

Note: The model is contextualized within New Liberal Arts' emphasis on interdisciplinary integration and GIUR's multi-stakeholder ecosystem.

2. Materials and Methods

2.1. Research Tools and Variable Settings

The questionnaire used in the study comprises five sections: demographic information of participants, institutional support, professional identity, perceptions of classroom atmosphere, and career adaptability. The measurement tools are based on scales from relevant domestic and international research and have been revised to reflect the specific characteristics and circumstances of the study population. Specifically, the measure of institutional support drew upon Pascarella's Comprehensive Causal Model of Student Development and Tinto's Institutional Action Model. It utilized the Institutional Support Scale from the China College Student Study (CCSS) questionnaire—developed by the Tsinghua University China

College Student Development Tracking Research Group—to assess perceptions of institutional support, covering three aspects: psychological support, academic support and practical support. Perceptions of class atmosphere were assessed using the Student Perceived Class Interpersonal Harmony Questionnaire, developed by Chinese scholars Chen Binbin and Li Dan based on Schaps et al.'s theory of class environment. This questionnaire comprises three dimensions: peer relationships, teacher-student relationships, and class organization. Professional identity was assessed using the 'Undergraduate Professional Identity Questionnaire' designed by Qin Panbo, comprising four dimensions: professional cognition, professional emotion, professional behaviour, and professional fit. Following a small-scale pilot study, relevant statements were revised based on feedback from engineering students. Career adaptability was measured using the CAASf China Scale, a 12-item instrument developed by Yu et al. based on the CAAS China and the work of Maggiori, Rossier, and Savickas. All the above measures employed a 5-point Likert scale and demonstrated good internal consistency.

This study employed Smart PLS 4.0 software to conduct Partial Least Squares Structural Equation Modelling (PLS-SEM) analysis. The selection of this method was primarily based on the following considerations: First, given the complex model structure involving multiple latent variables in this study, PLS-SEM demonstrates greater robustness when handling such data, effectively addressing multicollinearity issues and relaxing the requirement for normal data distribution; Second, in the context of exploratory research on the development of the "New Liberal Arts"—where the theoretical framework remains to be refined—PLS-SEM is better suited for theoretical construction and testing path relationships among variables; furthermore, a review of recent literature in SSCI journals in the fields of tourism management and tourism education reveals that the PLS-SEM method has been widely adopted and validated as an effective tool for testing relationships among variables^[32,33]. Therefore, this study employs PLS-SEM for path analysis and hypothesis testing to explore the associations among the variables and their underlying mechanisms.

2.2. Data Collection

This study employed a questionnaire-based approach for data collection, with the survey distributed via an online

platform between December 2024 and September 2025. Data collection for this study was divided into three phases. The first phase, from December 2024 to March 2025, involved preliminary research and questionnaire revision. The questionnaire underwent multiple rounds of refinement based on KMO tests and reliability and validity analyses of the collected data, combined with feedback from respondents. The second phase, from March to May 2025, involved the formal survey of current students. However, due to the niche nature of the discipline and the small student population, the number of valid responses collected during this phase did not meet the statistical analysis requirements for interval-scale data; Consequently, Phase 3 (May–September 2025) expanded the survey population to include graduates from the same discipline. Follow-up surveys were conducted via alumni networks, ultimately ensuring that the sample size met and exceeded the pre-set statistical standards. A total of 711 questionnaires were received; after excluding those with duplicate content or missing items, 645 valid responses were obtained, representing a valid response rate of 90.71%.

2.3. Testing for Common Method Bias

As the data for both the independent and dependent variables were collected from the same respondents at the same time, common method bias (CMB) may be present. To address this issue, we conducted Harman's one-factor test. The results of the unrotated exploratory factor analysis showed that the first factor explained 33.026% of the total variance, which is below the 50% threshold^[34]. This indicates that no single factor can account for the majority of the covariance among the variables. Therefore, common method bias is not a significant issue in this study.

3. Results

3.1. Demographic Characteristics of Respondents

Table 1 presents the demographic characteristics of the participants in this study. Specifically, 43.2% of participants were male, and 56.8% were female, with the proportion of females being slightly higher than that of males. The age distribution of respondents is as follows: 91 people (14.1%) were under 20 years of age, 353 people (54.7%) were aged

between 20 and 29, 153 people (23.8%) were aged between 30 and 39, and 48 people (7.4%) were aged 40 or over. The respondents were generally young, with the 20–29 age group accounting for over half of the total.

In terms of educational attainment, respondents generally held higher qualifications: 165 (25.6%) held a college diploma, 399 (61.9%) held a bachelor's degree, and 81 (12.5%) held a master's degree or higher. Over 74% of

participants held a bachelor's degree or higher, indicating a high overall level of education within the sample.

Based on these demographic characteristics, the sample collected for this study consists primarily of young, highly educated individuals, with a slight majority of women. It is highly representative and is particularly suitable for exploring issues related to young people, educational backgrounds or career development.

Table 1. Demographic characteristics of respondents.

Statistical Variable	Category	Frequency	Percentage (%)
Education Level	Junior College	165	25.6
	Bachelor's Degree	399	61.9
	Postgraduate and above	81	12.5
Gender	Female	367	56.8
	Male	278	43.2
Age Group	Under 20	91	14.1
	20–29	353	54.7
	30–39	153	23.8
	40 and above	48	7.4

3.2. Reliability and Validity Test

The reliability and validity of the questionnaire were analyzed using SPSS 26.0 and SmartPLS 4 software, and the results are shown in **Table 2**. The reliability and validity of the questionnaire data were mainly tested by Cronbach's alpha, combined reliability (CR), and average extracted variance (AVE). From the results in **Table 2**, it can be seen that

the Cronbach's alpha values of each variable are between 0.716 and 0.771, all greater than 0.7, indicating that the questionnaire data have a high level of reliability. The combined reliability (CR) of the questionnaire data was between 0.837 and 0.866, all greater than 0.7; And the average extracted variance (AVE) of the questionnaire data ranged from 0.562 to 0.684, all greater than 0.5, indicating high aggregated validity of the questionnaire data.

Table 2. Confirmatory factor analysis.

Variable	Items	Standardized Factor Loading	Cronbach's Alpha	CR	AVE
Learning Support	LS1	0.923	0.918	0.948	0.858
	LS2	0.935			
	LS3	0.922			
Psychological Support	PS1	0.932	0.930	0.955	0.876
	PS2	0.943			
	PS3	0.932			
Living Facilities Support	LFS1	0.928	0.913	0.945	0.851
	LF2	0.943			
	LF3	0.896			
Peer Relationship	PR1	0.946	0.932	0.956	0.880
	PR2	0.942			
	PR3	0.926			
Teacher–Student Relationship	T-SR1	0.918	0.928	0.946	0.816
	T-SR2	0.941			
	T-SR3	0.816			
	T-SR4	0.932			
Class Organization	CO1	0.901	0.847	0.907	0.766
	CO2	0.880			
	CO3	0.844			
Professional Identity	PI1	0.918	0.917	0.948	0.858
	PI2	0.940			
	PI3	0.920			

Table 2. *Cont.*

Variable	Items	Standardized Factor Loading	Cronbach's Alpha	CR	AVE
Career Adaptability	CA1	0.963	0.959	0.973	0.924
	CA2	0.955			
	CA3	0.966			

3.3. Discriminant Validity Test

At the same time, discriminant validity tests were conducted on the questionnaire data. The commonly used discriminant validity test method in SmartPLS 4 was the Fornell–Larcker standard. The specific results are shown in **Table 3**. The values in bold on the diagonal are the square roots of the latent variables, and the values below the diagonal are the correlation coefficients between the latent

variables. Studies have shown that the criterion for good discriminative validity of the sample data is that the AVE square root value of each latent variable is greater than the correlation coefficient between that variable and other variables. It can be seen from the table that the values at the top of each column are greater than all the values after them, indicating that the sample data of this study has good discriminative validity.

Table 3. Tests for discriminant validity.

	PI	PR	LS	T-SR	PS	CO	LFS	CA
PI	0.926							
PR	0.279	0.903						
LS	0.532	0.274	0.926					
T-SR	0.574	0.314	0.680	0.938				
PS	0.313	0.095	0.310	0.284	0.936			
CO	0.261	0.115	0.210	0.221	0.298	0.875		
LFS	0.270	0.127	0.225	0.293	0.217	0.177	0.922	
CA	0.364	0.220	0.325	0.393	0.215	0.120	0.241	0.961

In terms of assessing discriminant validity, Henseler and his research team^[35] have proposed an innovative approach that uses the heterogeneity—unity ratio (HTMT) to measure the degree of association between variables. This method is capable of accurately measuring the true level of correlation between two latent variables. According to Henseler et al.'s research^[35], the critical value of the HTMT index was set at 0.90, and if the calculation results exceeded

this limit, it indicated that the discriminant validity of the model was insufficient. Also, whether the range of the HTMT confidence interval includes the value 1 is a key criterion for judgment. It can be seen from the data presented in **Table 4** that the PLS model constructed in this study fully meets the above requirements, which not only confirms the applicability of the HTMT standard but also fully demonstrates that the model has ideal discriminant validity characteristics.

Table 4. Discriminant validity test based on HTMT standard.

	PI	PR	LS	T-SR	PS	CO	LFS	CA
PI								
PR	0.274							
LS	0.579	0.278						
T-SR	0.621	0.312	0.735					
PS	0.335	0.096	0.335	0.303				
CO	0.292	0.131	0.237	0.245	0.341			
LFS	0.293	0.138	0.243	0.313	0.232	0.196		
CA	0.388	0.212	0.346	0.415	0.224	0.129	0.254	

3.4. Collinearity Assessment

With reference to the findings of Hair et al.^[36], the minimum range of the variance inflation factor (VIF) is 1 to

10. VIF provides information on the extent of variance inflation for each coefficient. When analyzing VIF, a value of 1 indicates no correlation, a value between 1 and 5 indicates moderate correlation, and a value greater than 5 indicates

high correlation.

To accurately identify possible multicollinearity among variables, the VIF values of all variables were systematically measured in this study. The analysis results showed that the maximum VIF value was only 2.193 (see **Table 5**), which fully met the acceptable standard proposed by scholars such as Hair et al.^[36]. It can be seen that none

of the variables in the study showed multicollinearity. It is generally believed that when the VIF value is greater than 3, the model may have a potential for collinearity. As shown in the table below, the VIF values of all measurements in this study were below 3, which further confirmed that there was no significant collinearity problem among the measurements.

Table 5. Variance Inflation Factor (VIF) test of measurement indicators.

	PI	PR	LS	T-SR	PS	CO	LFS	CA
PI								1.677
PR	1.121							1.134
LS	1.931							2.010
T-SR	2.013							2.193
PS	1.205							1.222
CO	1.135							1.149
LFS	1.128							1.138
CA								

3.5. Path Coefficient and Hypothesis Test

In accordance with standard practice in PLS-SEM predictive modelling, demographic variables were used solely for sample description and were not included as control variables in the path model, as this study focuses on the net effects of the perceived constructs. The hypothesized theoretical model is presented in **Figure 1**, and the empirical results with path coefficients are shown in **Figure 2**. In order to validate the theoretical model of “college support, classroom climate perception → professional identity → career adaptability”, this study employed hypothesis testing using the self-service method operation in SmartPLS 4.0. The results

are shown in **Table 6** and **Figure 2**. The study found that all three dimensions of institutional support were significantly and positively associated with professional identity. Among these, academic support exhibited a relatively strong association ($\beta = 0.218, p < 0.001$), followed by psychological support ($\beta = 0.101, p < 0.01$) and support for living facilities ($\beta = 0.077, p < 0.05$). The study also confirmed that the three dimensions of perceived classroom atmosphere are significantly and positively associated with professional identity. Among these, the teacher-student relationship showed a relatively stronger association ($\beta = 0.328, p < 0.001$), followed by peer relationships ($\beta = 0.087, p < 0.01$) and classroom organization ($\beta = 0.089, p < 0.05$).

Table 6. Hypothesis test results.

Hypothesis	Relationship	Standardized Path Coefficient	p-Value	Result
H1a	Learning Support → Professional Identity	0.218	0.000***	Supported
H1b	Psychological Support → Professional Identity	0.101	0.006**	Supported
H1c	Living Facilities Support → Professional Identity	0.077	0.048*	Supported
H2a	Peer Relationship → Professional Identity	0.087	0.007**	Supported
H2b	Teacher-Student Relationship → Professional Identity	0.328	0.000***	Supported
H2c	Class Organization → Professional Identity	0.089	0.010*	Supported
H3a	Learning Support → Career Adaptability	0.039	0.438	Not Supported
H3b	Psychological Support → Career Adaptability	0.072	0.055	Not Supported
H3c	Living Facilities Support → Career Adaptability	0.108	0.003**	Supported
H4a	Peer Relationship → Career Adaptability	0.084	0.036*	Supported
H4b	Teacher-Student Relationship → Career Adaptability	0.203	0.000***	Supported
H4c	Class Organization → Career Adaptability	-0.025	0.563	Not Supported
H5	Professional Identity → Career Adaptability	0.158	0.001**	Supported

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

The data indicate that, in the pathways directly influencing professional adaptation, learning support ($\beta = 0.039, p = 0.438$) and psychological support ($\beta = 0.072, p = 0.055$) did not reach statistical significance. However,

support for living facilities exhibited a significant positive association ($\beta = 0.108, p < 0.01$). Regarding perceived classroom atmosphere, peer relationships ($\beta = 0.084, p < 0.05$) and teacher-student relationships ($\beta = 0.203, p < 0.001$) were significantly and positively associated with vocational adaptability, whereas the association with classroom organization ($\beta = -0.025, p = 0.563$) was not significant. At the same time, a significant positive association was found between professional identity and career adaptability ($\beta =$

$0.158, p < 0.01$). Furthermore, the R^2 values for the two endogenous variables in this study—professional identity and career adaptability—were 0.404 and 0.207, respectively, indicating that the model has moderate explanatory power for professional identity and some explanatory power for career adaptability.

In conclusion, the following hypotheses were tested in this study: H1a–H2c, H3c, H4a, H4b, and H5 were supported, while H3a, H3b, and H4c were not supported.

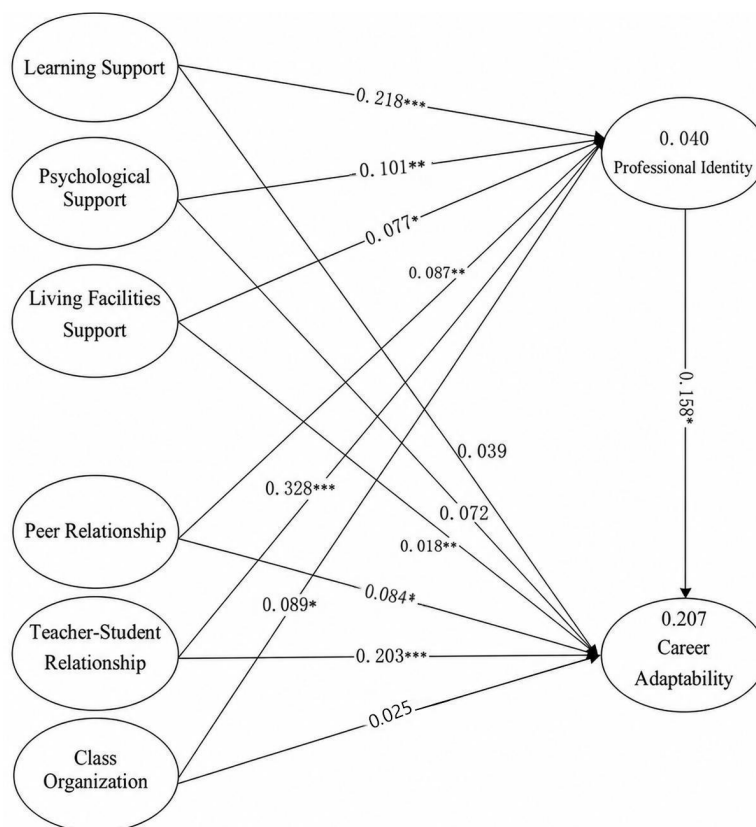


Figure 2. Empirical results of the model.

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4. Discussion

Set against the backdrop of the development of the New Liberal Arts and the collaborative interaction between government, industry, research and academia, this study constructed and tested a theoretical model comprising “institutional support—perceived classroom atmosphere—professional identity—career adaptability”. Although the model’s explanatory power for career adaptability is modest, this aligns with mainstream vocational psychology research^[28], which suggests that career adaptability is influenced by multiple factors beyond educational environments,

including personality traits, family background, and labour market conditions. This does not diminish the importance of institutional and classroom ecosystems; rather, it highlights their unique and indispensable role in the career development of tourism management students within the New Liberal Arts context.

Firstly, learning support exerts the most significant influence on professional identity. This finding echoes the views of Tinto^[12] and Pascarella and Terenzini^[11] regarding the central role of institutional support in student development, whilst also extending this theory within the context

of the New Liberal Arts. In traditional research, learning support is often viewed as a direct reflection of curricular resources and teaching quality^[13]; however, this study found that, within the context of the New Liberal Arts—which emphasizes interdisciplinary approaches, project-based learning and the integration of industry and education—the essence of learning support has shifted from the provision of knowledge to the development of competencies. Students’ perception of high-quality, interdisciplinary learning resources closely integrated with industry practice significantly enhances their cognitive identification with and emotional attachment to their discipline. This finding provides a valuable supplement to Perna and Thomas’s^[14] multi-level model of student success, suggesting that the theoretical framework of institutional support needs to further incorporate new dimensions such as interdisciplinary integration and industry-education collaboration.

Secondly, the teacher-student relationship is the most influential factor in the classroom atmosphere, a finding that holds particular theoretical significance within the context of Chinese higher education. Unlike Western research, where classroom atmosphere is often centred on peer interaction^[15,16], this study found that, within China’s cultural tradition of ‘respecting teachers and valuing education’ and the institutional arrangement of the mentor-responsibility system, the teacher-student relationship exerts a decisive influence on students’ professional identity. This finding resonates with Khazen et al.’s^[17] research on the teacher’s leading role, whilst also providing empirical support for reform measures such as the ‘dual-mentor system’ and ‘industry mentor involvement in teaching’ within the context of the New Liberal Arts. When teachers serve not only as knowledge transmitters but also as industry guides and project collaborators, students’ sense of professional identity is significantly enhanced.

Thirdly, professional identity plays a crucial mediating role between institutional support, classroom atmosphere and career adaptability. Although the direct effects of academic support and psychological support on career adaptability are not significant, they exert an indirect influence by enhancing professional identity. This finding corroborates Savickas and Porfeli’s^[28] view that ‘career adaptability is a constructive self-resource’, whilst also suggesting that educational interventions should prioritize addressing the funda-

mental question of ‘why students choose and identify with this discipline’, rather than merely providing skills training or psychological counselling. In contrast, support regarding living facilities, peer relationships and teacher-student relationships is directly associated with career adaptability. This result suggests that foundational support conditions and interpersonal interactions can be more rapidly translated into students’ career preparation behaviours, likely because they are more closely aligned with students’ daily experiences and immediate needs.

Furthermore, the findings of this study indicate that some direct pathways did not reach the level of significance; this phenomenon also carries profound pedagogical implications and warrants further exploration. Firstly, the fact that the direct effects of learning support and psychological support on career adaptability were not significant (H3a and H3b) does not imply that the investment in teaching resources and psychological counselling services within higher education institutions is ineffective. On the contrary, this precisely confirms that, within the context of the New Liberal Arts, the career development of tourism management students does not rely solely on the isolated imparting of knowledge or emotional reassurance. The data indicate that these supportive factors do not directly translate into career competence, but must be catalyzed through the core psychological mechanism of professional identity. In other words, only when students have not only acquired knowledge but also embraced their identity as tourism management professionals can this accumulation truly be transformed into the adaptability required to navigate career changes. This suggests that the direct contribution of mere knowledge transfer to career adaptability is limited if it is not combined with the cultivation of professional values. Secondly, regarding the negative yet non-significant effect of classroom organization on professional adaptability (H4c), this may reveal a latent tension within current tourism management teaching practices. In traditional classroom management logic, organization often implies controlling factors such as disciplinary constraints and attendance regulations; however, within the context of the ‘New Liberal Arts’ that emphasizes innovation and cross-disciplinary integration, overly rigid or formalized classroom organization may, to some extent, stifle students’ autonomy and curiosity. Although this pathway did not reach statistical significance in this study, its negative coefficient suggests

that if classroom organization remains confined to the level of maintaining order, rather than evolving into an ecosystem of co-creation between teachers and students, it may fail to directly promote students' career adaptability and may even exert a slight inhibitory effect. This also explains why the dimension of the teacher-student relationship—which is more emotionally and interactionally oriented—exerts a far more profound influence than structured classroom organization. These findings challenge the conventional view of institutional support as a closed-university construct, instead supporting an open-ecosystem model.

5. Conclusions

5.1. Theoretical Significance

This study makes several theoretical contributions. Firstly, it extends institutional support theory by identifying the distinct effects of academic support, psychological support and life support on professional identity within the context of the New General Education. Secondly, it highlights the culturally specific role of the teacher-student relationship in Chinese higher education, where, in this context, the influence of the teacher-student relationship on professional identity is more significant than that of peer relationships or classroom organization. Thirdly, through interdisciplinary, Globalization and Internationalization Research (GIUR)-oriented empirical research, this study reveals the mediating role of professional identity between specific educational environmental variables and career adaptability, thereby enriching career construction theory.

5.2. Practical Implications

This study's findings, based on an empirical analysis of 645 valid questionnaires, provide robust confirmation of the validity of the "Institutional Support—Classroom Climate Perception—Professional Identity—Career Adaptability" model. In response to the challenges posed by the new liberal arts era, the following targeted strategies are proposed with a view to optimizing the talent cultivation model in tourism management:

1. The construction of a "Three-Dimensional" Institutional Support System.

In order to enhance the synergy of learning, psychological and living support, it is recommended that universities adopt a student-centred approach. Institutions are required to incorporate the interdisciplinary philosophy of the New Liberal Arts into the curriculum. The implementation of project-based learning and the establishment of a "Dual-Mentor System" are pivotal to this endeavour. Furthermore, there is a need to enhance psychological support platforms to address career anxiety, whilst concomitantly seeking to improve living conditions to alleviate non-academic stressors.

2. The cultivation of a positive class ecosystem is of paramount importance.

In order to enhance the "sense of belonging," educational efforts should concentrate on improving the quality of interactions. It is recommended that "Professional Salons" be organized and that "Senior-Help" programmes be integrated in order to encourage peer mutual assistance. The implementation of cooperative learning models, coupled with the active involvement of classes in GIUR collaborative projects, has been demonstrated to engender a classroom culture characterized by openness and professionalism.

3. The relationship between professional identity and career development.

In order to facilitate the transformation of professional identity into career resilience, it is recommended that a phased, integrated curriculum model be implemented, with a view to bridging the gap between academic learning and career development. In the initial year of study, a designated "Professional Introduction" course should be made available to establish cognitive foundations, utilizing case studies of emerging tourism formats—such as the night-tourism economy in cities like Kaifeng—to assist students in recognizing the professional value and societal impact of their chosen major. During the sophomore and junior years, the focus should shift to deepening emotional bonds through "Industry Forums" and "GIUR collaborative projects," where interaction with industry leaders and participation in real-world projects can strengthen professional commitment. Finally, in the senior year, the transition to employment is facilitated through "Career Matching Workshops" that align students' specialized skills with

specific job market requirements. The institution's vertical integration of "Cognitive Awareness—Emotional Identification—Career Practice" is pivotal in ensuring that students can effectively translate their academic identity into practical career adaptability.

4. The present paper sets out the hypothesis that deepening Government–Industry–University–Research (GIUR) synergy is the key to unlocking progress in this field.

The utilization of the GIUR mechanism is imperative for the effective delivery of practical education. Institutions should collaborate with local cultural tourism departments and enterprises to build diverse practical platforms. This includes the establishment of "Enterprise Practice Credits," participation in government-led projects, and the founding of "Tourism Innovation Laboratories." Such measures have been shown to provide students with practical experience, as well as enhancing their innovative thinking and competitiveness in the labour market.

5.3. Limitations and Future Directions

Although this study has made some progress in terms of theoretical development and empirical testing, there remain several limitations that warrant further refinement and expansion in future research.

Firstly, the sample is limited in terms of discipline and geographical scope. This study focused exclusively on students majoring in tourism management, with the sample primarily drawn from universities in Henan Province. The pathways and challenges faced by different disciplines in the development of the New Liberal Arts vary significantly, and the collaborative ecosystems involving government, industry, research and academia also differ across regions. Consequently, the applicability of this study's conclusions to other disciplines or regions requires further verification. Future research could be expanded to include a wider range of disciplines and cross-regional samples to test the model's cross-domain stability.

Second, the limitations of cross-sectional data in causal inference. We acknowledge that this study, due to its cross-sectional design, is unable to establish causal relationships among the variables. This study utilized cross-sectional questionnaire data; although the theoretical model is grounded in

robust literature and temporal logic, it cannot entirely rule out reverse causality or the interference of third-party variables. For instance, students with higher professional identity may be more proactive in perceiving institutional support, rather than support leading to identity. Future research could adopt longitudinal tracking designs or experimental studies to more rigorously verify the causal direction between variables.

Third, the issue of simplifying the measurement dimensions of career adaptability. For the sake of model simplicity and overall effect, this study treated career adaptability as a unidimensional variable. However, the four-dimensional structure proposed by Savickas and Porfeli^[28] has been widely validated, and different dimensions may be differentially influenced by distinct antecedent variables. For instance, teacher-student relationships may exert a more significant influence on 'career confidence', whilst practical support may act more directly on 'career curiosity'. Future research could employ a multidimensional career adaptability scale to explore in depth the mechanisms through which institutional support and classroom atmosphere affect different dimensions, thereby providing more refined educational recommendations.

Fourthly, process-oriented variables concerning the New Liberal Arts and the collaboration between government, industry, research and academia were not fully captured. This study primarily examined the outcomes of institutional support and classroom atmosphere, but failed to delve deeply into process-related factors such as 'how New Liberal Arts courses are designed and implemented' and 'how government–industry–research–education collaboration operates in practice'. For instance, different forms of industry-education integration projects may exert heterogeneous effects on professional identity. Future research could employ qualitative research methods to reveal the micro-processes of teaching reform and collaborative education within the New Liberal Arts context, and attempt to develop more targeted measurement tools.

Fifth, the potential for cross-cultural comparison. Although the "institutional support–classroom atmosphere–professional identity–career adaptability" model proposed in this study is rooted in the context of China's New Liberal Arts development, does the theoretical logic it embodies possess cross-cultural universality? Future research could attempt comparative studies between East Asian countries such

as China, South Korea and Japan, or with Western higher education systems, to test the model's cross-cultural validity.

Sixth, regarding the heterogeneity between graduates and non-graduates. We agree with the reviewers' view that students at different academic stages may exhibit varying degrees of professional identity. To address this, we attempted to use multigroup analysis (MGA) to compare these groups. However, as shown in **Table 1**, there are some imbalances in the sample composition, with the ratio of partial data results being approximately 1:4. Methodological research indicates that in Partial Least Squares Structural Equation Modelling (PLS-SEM), such imbalance in group sizes may lead to biased parameter estimates and reduced statistical power. Therefore, while we acknowledge the theoretical importance of this distinction, we analyzed the combined sample to ensure the robustness of the core model. We recommend that future studies employ samples with more balanced group sizes to further explore these potential differences.

Author Contributions

Conceptualization, N.C. and Q.Y.; methodology, N.C.; software, Y.L.; validation, R.T., Y.L. and Y.G.; formal analysis, R.T.; investigation, R.T. and Y.G.; resources, N.C. and Q.Y.; data curation, R.T.; writing—original draft preparation, R.T.; writing—review and editing, N.C. and Q.Y.; visualization, Y.L.; supervision, Q.Y.; project administration, Q.Y.; funding acquisition, N.C. and Q.Y. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

This study has been approved by the Academic Committee of the Research Institute for Study Travel at Henan University (December 30, 2024, No.: 2024-RIST-003), which

is responsible for the ethical review of all research projects conducted by the faculty of the school. The design and implementation of all procedures in this study have adhered to the ethical standards outlined in the Declaration of Helsinki, and the scope of approval encompasses all aspects of the research.

Informed Consent Statement

In accordance with the Declaration of Helsinki, the researchers collected sample data from Chinese students at Henan University, China, from March to September 2025, by distributing self-administered paper questionnaires offline using a random sampling method. Before respondents began answering the questionnaire, the researchers explained the purpose of the study, the specific procedures, the scope of data use, data protection measures, the potential public disclosure of anonymized results, and the respondents' right to withdraw from the study at any time without penalty. Respondents completed the questionnaire based solely on their own views and intentions, and provided their informed consent. All of this information (the study description and informed consent statement) appeared in the introductory section on the first page of the paper questionnaire. By continuing to complete the questionnaire, respondents indicated their informed consent, ensuring voluntary participation and the confidentiality of their responses. They could withdraw from the study at any time, according to their personal preference. The questionnaires were completed during the formal sampling survey period from March to September 2025.

Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

AI Use Statement

During the preparation of this manuscript, the authors used Qwen 3.5 solely for language refinement. No AI tools were used for data analysis, interpretation, or generation of scientific content. All outputs were critically reviewed and edited by the authors. The authors take full responsibility for the integrity and accuracy of the work.

References

- [1] Bao, Y., 2023. Research on collaborative education model for undergraduate programs in tourism management under the background of New Liberal Arts education. *International Journal of New Developments in Education*. 5(20), 140–145. DOI: <https://doi.org/10.25236/IJNDE.2023.052025>
- [2] Park, H.W., Leydesdorff, L., 2010. Longitudinal trends in networks of university–industry–government relations in South Korea: The role of programmatic incentives. *Research Policy*. 39(5), 641–649. DOI: <https://doi.org/10.1016/j.respol.2010.02.009>
- [3] Zhou, Z., Wang, M., 2018. The status quo and future of Jingdezhen five-colour porcelain art inheritance from the perspective of “Government–User–Industry–Academia–Research”. *Art Documents*. 4, 139–141. DOI: <https://doi.org/10.16585/j.cnki.ms wx.2018.04.068> (in Chinese)
- [4] Anatan, L., 2015. Conceptual issues in university to industry knowledge transfer studies: A literature review. *Procedia – Social and Behavioral Sciences*. 211, 711–717. DOI: <https://doi.org/10.1016/j.sbspro.2015.11.090>
- [5] Cheng, X., Jiang, H., Zheng, X., 2012. School–local collaboration to build a “Government–Industry–Academia–Research” pathway for practical education. *University Teaching in China*. 2, 69–70, 10. (in Chinese)
- [6] Chen, D., 2024. The study on the construction path of modern industry college of Hubei higher vocational colleges. *Region – Educational Research and Reviews*. 6(10), 198–203. DOI: <https://doi.org/10.32629/rerr.v6 i10.2729>
- [7] Chiu, T.K.F., Meng, H., Chai, C.-S., et al., 2022. Creation and evaluation of a pretertiary artificial intelligence (AI) curriculum. *IEEE Transactions on Education*. 65(1), 30–39. DOI: <https://doi.org/10.1109/TE.2021.3085878>
- [8] Jia, W., Ma, F., 2021. From the review of China’s New Liberal Arts to the vision of global New Liberal Arts. *Journal of Yangzhou University (Humanities and Social Sciences Edition)*. 25(2), 104–111. DOI: <https://doi.org/10.19411/j.cnki.1007-7030.2021.02.009> (in Chinese)
- [9] Zhang, S., Zhang, Z., 2024. How does “New Liberal Arts” revitalise liberal arts: Based on the connotation analysis and organisational logic of New Liberal Arts. *Monthly Journal of Educational Research*. 10, 64–72. (in Chinese)
- [10] Wei, J., 2024. Talent cultivation in China’s publishing industry under the background of New Liberal Arts construction: Taking the construction of publishing discipline as an opportunity. *Editorial Friend*. 8, 60–65. (in Chinese)
- [11] Pascarella, E.T., Terenzini, P.T., 2005. *How College Affects Students, Volume 2: A Third Decade of Research*. Jossey-Bass: San Francisco, CA, USA.
- [12] Tinto, V., 2012. *Completing College: Rethinking Institutional Action*. University of Chicago Press: Chicago, IL, USA. pp. 25–53. DOI: <https://doi.org/10.7208/chicago/9780226804545.001.0001>
- [13] Zhang, Y., Liu, T., 2015. An empirical study on institutional support and individual participation in the development of different types of students: Based on the survey of college students’ development in the capital. *Monthly Journal of Educational Research*. 9, 82–88. DOI: <https://doi.org/10.16477/j.cnki.issn1674-2311.2015.09.011> (in Chinese)
- [14] Perna, L.W., Thomas, S.L., 2006. *A Framework for Reducing the College Success Gap and Promoting Success for All*. National Postsecondary Education Cooperative: Washington, DC, USA.
- [15] Haukoos, G.D., Penick, J.E., 1985. The effects of classroom climate on college science students: A replication study. *Journal of Research in Science Teaching*. 22(2), 163–168. DOI: <https://doi.org/10.1002/tea.3660220207>
- [16] Umali, J.N.D., 2024. Artificial intelligence technology management of teachers, learners’ motivation and challenges encountered. *International Journal of Multidisciplinary and Current Educational Research*. 6(3), 821–880.
- [17] Khazen, M., Asli, S., Hofstein, A., et al., 2025. Effect of an educational initiative for sustainability on pre-service teachers’ ethical decision-making skills, motivation to learn science, and learning atmosphere in the classroom. *Sustainability*. 17(3), 992. DOI: <https://doi.org/10.3390/su17030992>
- [18] Berliana, R.P., Habiby, W.N., 2024. Teacher perceptions and implementation of a democratic classroom atmosphere in elementary schools. *Jurnal Cakrawala Pendas*. 10(2), 318–335. DOI: <https://doi.org/10.31949/jcp.v10i2.8915>
- [19] Shu, D., Huang, C., Xing, Y., 2024. Analysis of the promotion of classroom atmosphere in multimodal English teaching based on human–computer interaction. *International Journal of Human–Computer Interaction*. 40(13), 3516–3527. DOI: <https://doi.org/10.1080/1044>

- 7318.2023.2189822
- [20] Abbott, A., 1988. *The System of Professions: An Essay on the Division of Expert Labor*. University of Chicago Press: Chicago, IL, USA. DOI: <https://doi.org/10.7208/chicago/9780226189666.001.0001>
- [21] Salling Olesen, H., 2001. Professional identity as learning processes in life histories. *Journal of Workplace Learning*. 13(7–8), 291–298. DOI: <https://doi.org/10.1108/13665620110411076>
- [22] Yang, L., Wang, Y., Niu, Z., et al., 2025. Professional identity and learning engagement: Chain mediating effect among Chinese preservice teachers. *Social Behavior and Personality*. 53(4), e13821. DOI: <https://doi.org/10.2224/sbp.13821>
- [23] Liu, X., Ji, X., Zhang, Y., et al., 2023. Professional identity and career adaptability among Chinese engineering students: The mediating role of learning engagement. *Behavioral Sciences*. 13(6), 480. DOI: <https://doi.org/10.3390/bs13060480>
- [24] Swickert, M.L., 1997. Perceptions regarding the professional identity of counselor education doctoral graduates in private practice: A qualitative study. *Counselor Education and Supervision*. 36(4), 332–340. DOI: <https://doi.org/10.1002/j.1556-6978.1997.tb00399.x>
- [25] Roulston, A., Cleak, H., Vreugdenhil, A., 2018. Promoting readiness to practice: Which learning activities promote competence and professional identity for student social workers during practice learning? *Journal of Social Work Education*. 54(2), 364–378. DOI: <https://doi.org/10.1080/10437797.2017.1336140>
- [26] Neumeister, K.L.S., Rinker, J., 2006. An emerging professional identity: Influences on the achievement of high-ability first-generation college females. *Journal for the Education of the Gifted*. 29(3), 305–338. DOI: <https://doi.org/10.1177/016235320602900304>
- [27] Hirschi, A., 2009. Career adaptability development in adolescence: Multiple predictors and effect on sense of power and life satisfaction. *Journal of Vocational Behavior*. 74(2), 145–155. DOI: <https://doi.org/10.1016/j.jvb.2009.01.002>
- [28] Savickas, M.L., Porfeli, E.J., 2012. Career Adapt-Abilities Scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*. 80(3), 661–673. DOI: <https://doi.org/10.1016/j.jvb.2012.01.011>
- [29] McArdle, S., Waters, L., Briscoe, J.P., et al., 2007. Employability during unemployment: Adaptability, career identity and human and social capital. *Journal of Vocational Behavior*. 71(2), 247–264. DOI: <https://doi.org/10.1016/j.jvb.2007.06.003>
- [30] Fugate, M., Kinicki, A.J., Ashforth, B.E., 2004. Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*. 65(1), 14–38. DOI: <https://doi.org/10.1016/j.jvb.2003.10.005>
- [31] Yu, H., Dai, Y., Guan, X., et al., 2020. Career Adapt-Abilities Scale-Short Form (CAAS-SF): Validation across three different samples in the Chinese context. *Journal of Career Assessment*. 28(2), 219–240. DOI: <https://doi.org/10.1177/1069072719850575>
- [32] Usakli, A., Kucukergin, K.G., 2018. Using partial least squares structural equation modeling in hospitality and tourism: Do researchers follow practical guidelines? *International Journal of Contemporary Hospitality Management*. 30(11), 3462–3512. DOI: <https://doi.org/10.1108/IJCHM-11-2017-0753>
- [33] Chen, Q., Zhang, Q., Yu, F., et al., 2024. Investigating structural relationships between professional identity, learning engagement, academic self-efficacy, and university support: Evidence from tourism students in China. *Behavioral Sciences*. 14(1), 26. DOI: <https://doi.org/10.3390/bs14010026>
- [34] Lindell, M.K., Whitney, D.J., 2001. Accounting for common method variance in cross-sectional research designs. *Journal of Applied Psychology*. 86(1), 114–121. DOI: <https://doi.org/10.1037/0021-9010.86.1.114>
- [35] Henseler, J., Ringle, C.M., Sarstedt, M., 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*. 43(1), 115–135. DOI: <https://doi.org/10.1007/s11747-014-0403-8>
- [36] Hair, J.F., Black, W.C., Babin, B.J., et al., 2010. *Multivariate Data Analysis*, 7th ed. Pearson Prentice Hall: Upper Saddle River, NJ, USA.