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Applying Knowledge Gained or Not? The Impact of Undergraduates' Professional Fit on Perceived Employability

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Abstract

In the current situation where the employment pressure of college students is rapidly increasing, it is of great practical implication to explore the impact of undergraduates' professional fit on perceived employability. This study, examing a sample of 360 undergraduates, applies professional embeddedness theory to investigate the intrinsic mechanism by which professional fit indirectly impacts students' perceived employability through academic self-efficacy. Moreover, it examines the moderation effect of extracurricular practical activities. The results indicate that: First, there is a strong positive correlation between the undergraduate professional fit and perceived employability. Second, academic self-efficacy acts as a mediator in the relationship between professional fit and perceived employability. Third, extracurricular practical activities have a significant moderating effect on the primary relationship, yet their moderating effect on the connection between academic self-efficacy and employability perceptions is negligible. This study provides substantial and tangible support for colleges to effectively optimize their talent training modes and systematically guide students in formulating reasonable career planning strategies.

Keywords: Professional Fit, Academic Self-Efficacy, Extracurricular Practical Activities, Perceived Employability, Undergraduates

Introduction

In recent years, as the amplification of uncertainty in the global economic climate alongside decelerated growth, compounded by swift technological innovations and profound changes in industrial structures, has considerably impacted the job market for university graduates. Against this background, students are immersed in a fluid, complex, and unpredictable employment landscape, exacerbating their job-seeking pressures. As such,

employability has become a critical consideration for university students (Ergün and Sesen, 2021). Universities, as vital bridges between students and society, shoulder the responsibility of nurturing societal cornerstones and innovators of the future, necessitating a pivotal role in enhancing students' job market competitiveness. Central to students' perceived employability are the alignment of academic programs with market demands and the congruence between individual professional inclinations and their chosen fields of study. However, contemporary employers often contend that university coursework alone seldom suffices to comprehensively meet market expectations for graduate competencies (Mai, 2021) , even as educational institutions constitute a significant source of workforce supply. Numerous universities inadequately equip students for their professional futures during their academic tenure (I George and Paul, 2024). This deficiency in vocational competencies and psychological robustness erodes students' self-assurance and adaptive capacities in the competitive job arena, greatly affecting the perception of employability. Consequently, when devising metrics for students' employability, it is imperative to examine this construct through the lens of their academic disciplines.

There are many definitions of employability. For university students, Andrew Rothwell et al. (2008) define self-perceived employability as the "perceived capability to secure sustainable employment commensurate with one's qualifications". Employability is a multifaceted construct (Forrier and Sels, 2003) , which is influenced by both "internal" and "external" factors. The "internal" factor is the individual level of college students, and prior studies have suggested that personal characteristics, work experience (Jackson and Wilton, 2017) , career preparedness (I George and Paul, 2024) , psychological capital (Ayala Calvo and Manzano García, 2021) and other factors can affect perceived employability. "External" factors, referring to the environmental context enveloping students, encompass university brand, academic programs, feedback from alumni (Cabarello et al., 2015), career social support (Xia et al., 2015), and other factors that also influence perceived employability. However, with college majors serving as the first avenue for preparing students for their future career choices, there is little literature exploring how student-professional fit affects perceived employability. As the primary pathway for students to prepare for their future careers, university majors significantly shape students' perceptions of their vocational prospects. Surprisingly, there is little literature exploring how student-professional fit influences perceived employability. In reality, a considerable number of students select their majors initially with limited understanding of the respective job market or industry realities, often driven by immediate personal interests rather than through a rational assessment for long-term career planning. This decision-making approach leads to a phenomenon where some students, upon entering university, progressively exhibit a mismatch between their personal profiles and chosen fields of study.

Accordingly, this study mainly aims to examine the impact of professional fit on perceived employability of Chinese college students. We develop a theoretical framework positing that professional fit influences perceived employability via academic self-efficacy, and examines the moderating role of extracurricular activities in this relationship. Theoretically, this study expands the boundaries of professional embeddedness theory application and enriches the antecedents of perceived employability. Practically, it furnishes robust theoretical foundations and practical guidelines for universities to refine talent cultivation strategies and facilitate sound career planning among students.

Literature Review and Hypotheses Development

Embeddedness Theory in Education

Intuitively, embeddedness refers to the embedding of one thing in another. Embeddedness theory is mostly applied to the study of new economic sociology in the early days, Polanyi (2001) was the first to propose the concept of “embeddedness”, and used embeddedness to explain the state of interaction and dependence between the economy and the society, Granovetter later refined and expanded this in 1985, advocating that economic actions are nestled within social structures, distinguishing between relational and structural embeddedness (1985). Since then, embeddedness theory has flourished, and spawned notions like job and professional embeddedness, which permeated educational research. Part of the literature briefly applies the concept of “embeddedness” to explore the embedding of one factor in another. For example, knowledge management embedded in higher education institutions (Veer-Ramjeawon and Rowley, 2020), learning and technology embedded in teaching (Cohen and Karatzimas, 2022), ESD embedded in the higher education curriculum (Cebrián, 2017). Other literature delves deeper, applies embeddedness theory to educational research topics, such as analyzing the complexity of college student retention from a job-embedded framework (Wangrow et al., 2022). In addition to this, some literature has innovated embeddedness theory based on it. Furthermore, recent literature has innovated upon embeddedness theory. Burleson et al. (2021) adapted job embeddedness theory to introduce the constructs of major embeddedness and school embeddedness, accompanied by respective measurement scales. Specifically, major embeddedness characterizes the degree of a university student's integration within their academic discipline, encompassing three dimensions: Fit, Links and Sacrifice. Professional fit refers to the extent to which undergraduates' interests and abilities match their majors; professional links refers to the extent to which undergraduates are connected to their classmates and teachers in their majors; and professional sacrifice refers to the extent to which there is a loss of interest due to giving up their majors. Accordingly, this study focuses on the impact of undergraduates' professional fit on perceived employability.

Professional Fit and Perceived Employability

Professional fit is one of the components of professional embeddedness, encapsulating the congruence between an individual's choice of or engagement in a given major and the facets of their personality, actions, and values inherent to that discipline. In essence, it assesses the compatibility and comfort level students experience with their academic majors (Morganson et al., 2015), exerting a profound influence on academic progress, satisfaction, job acquisition, and career success. Yorke (2004) was defined employability that encompasses a suite of skills enhancing graduates’ job prospects and vocational achievements, embodying a collection of attainments, competencies, insights, and personal qualities benefiting individuals, the workforce, society, and the economy at large. This construct is shaped by a multitude of factors, including personal attributes (Eimer and Bohndick, 2021), institutional elements (Zhang et al., 2022), occupational social support (Granovetter, 1985) and many other factors. Moreover, employability stands as a pivotal aspect of higher education's talent cultivation, which directly affects the smoothness of undergraduates' mindset in pre-employment role change, the possibility of successful employment, and post-employment work performance. Previous studies on professional fit have shown that professional fit is positively correlated with academic performance and satisfaction, and negatively correlated with academic lag and psychological problems (Lent et al., 2000). However, most of the

existing empirical studies focus on the organizational level, such as the impact of career fit on organizational sentiment, job satisfaction, and voluntary turnover rates. In the context of the IT sector, heightened career fit among employees facilitates organizational integration, fostering a sense of identity, belonging, and job contentment, thereby aiding HRM in forecasting employee turnover (Converse et al., 2004; Crossley et al., 2007). Grounded in professional embeddedness theory, professional fit is posited to sway student engagement, academic attainment, and persistence in professional education and social practice (van der Velde and van den Berg, 2003). When students have a high degree of interest in and identification with their majors, they are more likely to invest more time and energy in learning and practicing, amassing specialized skills and experience, thereby enhancing their employability. Accordingly, we present the following hypothesis:

H1: Undergraduate students' professional fit is significantly and positively related to their perceived employability.

The Mediating Role of Academic Self-Efficacy

Self-efficacy, first proposed by the American psychologist Bandura (1977), refers to an individual's belief in their capacity to execute specific behaviors or attain desired outcomes, embodying an anticipation and appraisal of their action potential. An individual's self-efficacy is a relatively stable individual difference that can influence an individual's behavior, achievement, and emotional responses, as well as being influenced by situational and task characteristics (Lent et al., 1994). Academic Self-efficacy (ASE), a domain-specific application of self-efficacy in the learning sphere, denotes students' judgments about their capability to successfully accomplish academic tasks (Locke, 1987). It expresses a student's view of his or her knowledge, skills, experiences, and abilities, indicating their sense of ease in engaging in learning activities (Pajares and Schunk, 2001). According to social cognitive theory, academic self-efficacy is influenced by others' expectations and social support (Lim et al., 2016). In addition, existing research has used embeddedness theory and focus group survey methodology to explore the effects of major matching on factors, such as students' professional identity and college identity (Morganson et al., 2015). This study posits that professional fit also impacts students' academic self-efficacy. Academic self-efficacy focuses on an individual's beliefs about their abilities and employability (Coetzee and Oosthuizen, 2012). Individuals' perceptions of their actual ability to perform are shaped by their evaluations of themselves, and influences on the formation of such self-evaluations include an individual's personal experiences, social comparisons, social support, and self-efficacy (Bandura, 2014; van der Velde and van den Berg, 2003). Existing research suggests that academic self-efficacy has a significant impact on perceived employability (Ngo et al., 2017). Individuals with a high degree of professional embeddedness, characterized by elevated self-efficacy, foster greater confidence in their self and abilities, thereby augmenting perceived employability and facilitating superior job performance (Lee et al., 2004). Therefore, the following hypothesis was developed:

H2: There is a mediating effect of undergraduate students' academic self-efficacy in the effect of their professional fit on perceived employability.

The Moderating Role of Extracurricular Practical Activities

Extracurricular practical activities encompass a broad spectrum of experiential, participatory, and dynamic events occurring both within and outside university settings (Souitaris et al., 2007). These activities range from entrepreneurial endeavors such as

business simulation games, business plan competitions, and workshops (Pittaway et al., 2011), to social engagements like community service projects, marathons, volunteer initiatives, and student club activities (Berger and Wild, 2017; Green et al., 2019). As immersive, collective experiences, extracurricular practical activities facilitate interactions with diverse individuals, stimulate initiative, nurture innovation, and cultivate operational skills among college students, thereby enhancing their employability.

According to developmental theory, the interaction between humans and the environment in which they live is the essence of human development, and the theory emphasizes the influence of factors in dynamic environmental change on individual growth (Lerner, 2018). Extracurricular practical activities emerge as pivotal components in students' developmental landscape, emphasizing direct experience acquisition and the practical application of academic knowledge, fostering a transition from intuitive to rational understanding, thereby enhancing professional identity and self-awareness (Clark et al., 2015). Consequently, extracurricular practice activities may positively moderate the relationship between undergraduate professional fit and perceived employability. Frequent engagement bolsters authentic and profound self-evaluation, facilitating a positive influence of academic fit on employment prospects, whereas disengagement perpetuates superficial assessments, hindering this effect. In addition, according to social support theory, providing psychological support in the context of a behavior may increase a person's ability and desire to engage in a particular behavior (House, 1971). Psychological support refers to the emotional and evaluative support (cognitive, knowledge, information) provided (Cohen and Wills, 1985; Haley et al., 1987). Related research suggests that access to peer emotional support in extracurricular practical activities is particularly important for student development (Whiteman et al., 2013). Meanwhile, evaluative support facilitates comprehension and interpretation through feedback (Jackson, 2019).

This study posits that extracurricular participation fosters self-discovery, offering emotional sustenance and cognitive mentorship, synergistically amplifying academic self-efficacy, fostering academic confidence, and self-satisfaction, ultimately enhancing perceived employability. Conversely, innate academic self-efficacy may be underutilized by infrequent participants, inhibiting the realization of applied knowledge, cognitive transformation, and activation of self-efficacy, weakening its positive influence on employability perception. Hence, extracurricular engagement is proposed as a potential moderator of the link between academic self-efficacy and perceived employability. High involvement fosters proactive confidence, enhancing the positive impact of self-efficacy on employability, while low engagement, potentially exacerbated by introverted personalities (Mount and Barrick, 1998) or academic burnout (Capone et al., 2021) and other factors, leads to a lack of motivation and diminished social interaction, impeding the positive translation of self-efficacy into employability, prone to overestimation without practical proficiency. Accordingly, The following hypothesis was formulated:

H3a: Extracurricular practical activities positively regulate the direct effect of undergraduates' professional fit on perceived employability.

H3b: Extracurricular practical activities positively regulate the second half of the indirect effect of undergraduates' professional fit on perceived employability through academic self-efficacy.

Accordingly, the research model for this study, informed by the aforementioned hypotheses, is illustrated in Figure 1.

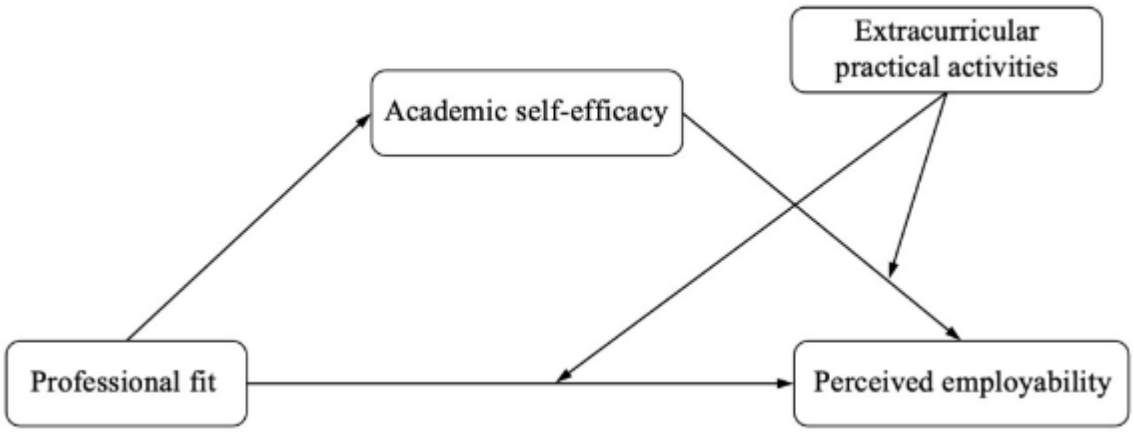

Figure 1. Research model

Methods

Participants

A total of 360 valid questionnaires were received. The sample comprised 192 male participants, representing 53.3% of the total, with a mean age of 21.78 years (SD=2.042), ranging from 18 to 35 years. Participant characteristics are summarised in Table 1.

Table 1
Summary of participant characteristics.

Variable	Sub-groups	N	Valid %	Variable	Sub-groups	N	Valid %
Gender	Male	192	53.3	Student Cadre	Yes	227	63.1
	Female	168	46.7		No	133	36.9
Stage of study	Freshman year	27	7.5	School City	First Line	94	26.1
	Sophomore	142	39.4		New Line	135	37.5
	Junior	130	36.1		Second line	87	24.2
	Senior	61	16.9		Others	44	12.2
Home location	Rural	102	28.3	Ranking	Top 30%	236	65.6
	County	111	30.8		30%-70	119	33.1
	City	147	40.9		Bottom 30%	5	1.4
University Programs	Arts and History	206	57.3	Father Education Level of education	Junior high school and below	72	20.0
	Science and Engineering	154	42.7		High School / Junior College	102	28.3
School Level	Key Institutions	220	61.1		College	76	21.1
	General Institutions	140	38.9		Undergraduate and above	110	30.6

Average monthly cost of living	Below 1500	139	38.6	Mother Educated Level of education	Junior high school and below	92	25.5
	1501-2000	120	33.3		High School / Junior College	97	26.9
	2001-3000	70	19.4		College	60	16.7
	Above 3000	31	8.6		Bachelor degree and above	111	30.9

Procedure

Participants reported on their background, study and professional fit , perceived employability, academic self-efficacy and extracurricular practical activities in an online survey. Information about the survey was provided, and completed questionnaires were randomly distributed and collected through an online platform. Data were gathered between March and May 2024.

Measures

The measure of professional fit was adapted from Major et al. (2020)'s instrument, comprising four items: "I am interested in my major," "My thought process aligns well with my major," "I can apply my personal skills and abilities in this major," and "My personality suits this major." Rated on a 5-point Likert scale, higher scores denote greater professional fit. Reliability testing yielded a Cronbach's alpha of 0.711, suggesting satisfactory internal consistency. Construct validity was confirmed through confirmatory factor analysis, evidenced by acceptable fit indices ($\chi 2/df = 1.232$, RMSEA = 0.025, CFI = 0.998, TLI = 0.995, SRMR = 0.014).

German psychologist Schwarzer et al. (2004) developed the General Self - Efficacy Scale, which is a pioneering work in the realm of academic self - efficacy measurement. Sherer (1982, 1983) comprehensive scale, originating in the United States, featuring dual aspects of "General" and "Social" self-efficacy, also enjoys broad utilization.This study adopts the globally esteemed General Self-Efficacy Maturity Scale, adhering to the established conceptual underpinnings of self-efficacy, and incorporates adjustments to the Academic Self-Efficacy Scale, initially compiled by Pintrich and later revised by Liang Yusong (Hjeltnes et al., 2015), to ensure its relevance and appropriateness for the Chinese student population. The resultant scale encompasses five statements reflecting various facets of academic self-efficacy, including belief in achieving academic excellence, breadth of subject knowledge, comprehension of taught materials, problem-solving capabilities in extra-curricular scenarios, and the integration of preceding and subsequent professional knowledge during practical engagements.The reliability assessment yielded a robust Cronbach's alpha coefficient of 0.706, affirming internal consistency. Moreover, confirmatory factor analysis validated the scale's structural integrity, yielding favorable indices indicative of acceptable construct validity ($\chi 2/df = 1.414$, RMSEA = 0.034, CFI = 0.992, TLI = 0.985, SRMR = 0.020) .

The measure of perceived employability is adapted from Chen and Lim (2012) , encompassing items such as: "I can readily identify job opportunities," "My skills and abilities align with companies' requirements," and "I am confident in securing employment given my relevant skills and experience." The reliability assessment rendered a satisfactory Cronbach's

alpha of 0.753. Confirmatory factor analysis further validated the scale's structural validity, yielding acceptable indices (χ2/df=1.636, RMSEA=0.042, CFI=0.993, TLI=0.983, SRMR=0.018).

Four items explored Extracurricular practical activities， which is derived from Arranz et al. (2017). "How often I participate in various competitions related to my major while I am in school; how often I participate in clubs related to my major; how often I participate in internships or part-time jobs related to my major; how often I participate in professional training and obtain relevant qualifications ". The results of the reliability test showed that the Cronbach's alpha coefficient was 0.802. Reliability testing reported a high Cronbach's alpha of 0.802. Confirmatory factor analysis supported the scale's structural validity with satisfactory indices (χ2/df=1.632, RMSEA=0.042, CFI=0.997, TLI=0.991, SRMR=0.013).

Data Analysis

In this study, questionnaire data were collected via self-report scales completed anonymously, and to mitigate systematic biases, Harman's single-factor test was employed to examine common method variance. The analysis revealed three factors possessing eigenvalues exceeding unity, with the primary factor explaining 37.995% of the total variance—below the 40% threshold typically indicative of substantial common method bias. Additionally, a common method bias assessment was integrated with confirmatory factor analysis for all self-assessment items, yielding model fit indices inferior to the initial model (χ2/df = 2.861, RMSEA = 0.072, CFI = 0.883, TLI = 0.867, SRMR = 0.072), further suggesting the data in this study did not suffer from severe common method bias. Descriptive analysis was followed by hierarchical regression, both using SPSS 22.0.

Results

In order to initially explore the relationships among professional fit, academic self-efficacy, perceived employability, and extracurricular activities, descriptive statistics and correlational analyses were conducted. The findings revealed statistically significant positive correlations between each pair of variables (for means, standard deviations, and the correlation matrix, see Table 2). The results suggest that undergraduate students' academic self-efficacy and perceived employability are enhanced as both professional fit and engagement in extracurricular activities increase.

Table 2
Descriptive statistics and bivariate correlations (n = 360).

Variables	M	SD	1	2	3	4
Professional fit	4.11	0.55	1			
Academic self-efficacy	4.03	0.52	0.71**	1		
Perceived Employability	3.94	0.58	0.60**	0.62**	1	
Extracurricular Practical Activities	3.67	0.81	0.57**	0.64**	0.59**	1

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

To mitigate the issue of inflated coefficient variances caused by multicollinearity, a thorough examination of this phenomenon was undertaken. As illustrated in Table 3, the

Durbin-Watson (DW) test statistic stands at 1.824, approximating 2, thereby implying an absence of autocorrelation. Moreover, with tolerance levels surpassing 0.1 alongside Variance Inflation Factors (VIF) below 3, the findings confirm that no substantial multicollinearity complications are present.

Table 3
Multicollinearity analysis

Dependent Variable	The impact of professional suitability	
	Tolerance	VIF
Professional fit	0.474	2.109
Academic self-efficacy	0.418	2.391
Extracurricular Practical Activities	0.564	1.773

To validate the main effects, hierarchical regression analyses were conducted utilizing SPSS 22.0, with the resultant data presented in Table 4. According to M4, it can be seen that a significantly positive impact of undergraduate students' professional fit on their perceived employability (β=0.562, p<0.001).

Table 4
Hierarchical regression analysis of main effects

Depend variable	**Academic self-efficacy**		**Professional suitability**		
	M1	**M2**	**M3**	**M4**	**M5**
Control variable					
Gender	0.036	0.030	-0.059	-0.064	-0.075
Age	0.071	0.077	0.119	0.123	0.095
Grade	-0.005	-0.068	-0.030	-0.086	-0.061
Home location	0.058	0.013	0.013	-0.027	-0.032
Average monthly cost of living	0.082	-0.004	0.047	-0.030	-0.028
Mother Educated Level of education	0.286***	0.134*	0.140	0.004	-0.046
Father Education Level of education	-0.147	-0.099	-0.023	0.020	0.057
University Programs	0.086	0.035	0.148**	0.103	0.089
School Level	0.033	-0.013	-0.001	-0.042	-0.037
School City	0.023	-0.004	0.001	-0.023	-0.021
Student Cadre	0.184***	0.112**	0.166**	0.102	0.060
Ranking	-0.209***	-0.099*	-0.122*	-0.023	0.014
Independent variable					
Professional fit		0.628***		0.562***	0.327***
Mediate variable					
Academic self-efficacy					0.374***
R2	0.237	0.539	0.161	0.403	0.468
△R2	0.237	0.302	0.161	0.242	0.064
F	8.996***	226.962***	5.567***	140.288***	41.706***

According to M2, the professional fit of undergraduates positively influences academic self-efficacy (β = 0.628, p < 0.001). According to M5, academic self-efficacy has a positive impact on perceived employability (β = 0.327, p < 0.001), and it mediates the relationship between professional fit and perceived employability (β = 0.014, p < 0.001). To rigorously validate this mediation effect, this study used the Bootstrap method of SPSS PROCESS for validation, with Model selected 4 and sample size set at 5000. Results, as depicted in Tables 5 and 6, confirm the significant positive influence of professional fit on both academic self-efficacy and perceived employability.The bias-corrected Bootstrap analysis substantiates the significance of academic self-efficacy's mediating role, with an indirect effect of 0.2481 and a 95% confidence interval of [0.163, 0.349], which does not encompass 0, thus establishing the presence of mediation.

Table 5
The mediation model test of academic self-efficacy (n=360).

Predictor variable	**Academic self-efficacy**			**Professional suitability**		
	b	**SE**	**t**	**b**	**SE**	**t**
Professional fit	0.5874***	0.0390	15.0652	0.3458***	0.610	5.6660
Academic self-efficacy				0.4223***	0.654	6.4580
R2		0.5394			0.4677	
F		31.1705***			21.6523***	

Note. *p<0.05，**p<0.01，***p<0.001

Table 6
The mediating effect of academic self-efficacy

Mediate variable	**Mediation effect value**	**Boot SE**	**Boot LLCI**	**Boot ULCI**
Academic self-efficacy	0.2481	0.0466	0.1629	0.3490

This study employed the SPSS plugin Process 4.0 to examine moderating effects, utilizing the software's built-in “Model 15” within the Process framework to specifically assess the moderated mediation pathway, which includes both the direct effect and the latter half of the indirect path, wherein extracurricular practical activities moderate the impact of professional fit on perceived employability through academic self-efficacy. The outcomes of the moderation effect tests are presented in Table 7.

Table 7
Results of the moderation effect tests.

Depend variable	Perceived employability	Academic self-efficacy
	M1	M2
Control variable		
Gender	-0.083	0.031
Age	0.023	0.019
Grade	-0.054	-0.041
Home location	0.002	0.006
Average monthly cost of living	-0.024	-0.002
Mother Educated Level of education	-0.032	0.052
Father Education Level of education	0.022	-0.040
University Programs	0.096	0.037
School Level	-0.020	-0.006
School City	-0.010	-0.002
Student Cadre	0.022	0.120
Ranking	0.008	-0.101
Independent variable		
Professional fit	0.360***	0.588***
Mediate variable		
Academic self-efficacy		
Moderate variable	0.289***	
Extracurricular practical activities		
Product term	0.185***	
Professional fit*Extracurricular practical activities	0.163*	
Academic self-efficacy *Extracurricular practical activities	-0.070	
R2	0.715	0.734
△R2	0.511	0.540
F	21.013***	31.171***

According to Table 7, it can be seen that: (1) the direct effect of professional fit on perceived employability in M1 is significant. (2) the effect of professional fit on academic self-efficacy in M2 is also significant. (3) notably, the interaction term between professional fit and extracurricular practical activities in M1 is significantly significant, whereas the interaction between academic self-efficacy and extracurricular activities does not yield significance. Consequently, extracurricular activities moderate the direct link between professional fit and perceived employability but fail to moderate the latter portion of the indirect path mediated by academic self-efficacy.

To further validate the significance of the moderated mediation, we divided the sample into two groups based on extracurricular activity frequency, one group above and one below one standard deviation from the mean. The significance of direct and indirect effects of professional fit on perceived employability at these two levels was examined. Bootstrap resampling with 5000 iterations provided results for the 95% confidence interval, as depicted in Table 8. These results illustrate differential impacts of professional fit on both direct and indirect effects across the two frequencies of extracurricular activities, with bias-corrected 95% confidence intervals excluding zero. However, when examining the moderating effect of

extracurricular activities on the entire model, the value is -0.041, with the bias-corrected 95% confidence interval including zero. Thus, extracurricular activities do not significantly moderate the latter half of the indirect path through academic self-efficacy to perceived employability.

Table 8
Results of the Moderated Mediation Bootstrap Test.

Path	Frequency level of Extracurricular practical activities	Perceived employability			
		Effect size	SE	UCL	LCL
Professional fit→Perceived employability	Low	0.227**	0.070	0.088	0.365
	High	0.492***	0.104	0.287	0.696
Professional fit→Academic self-efficacy→Perceived employability	Low	0.203	0.057	0.096	0.323
	High	0.136	0.068	0.007	0.268
	Total	-0.041	0.050	-0.144	0.055

Note. *p<0.05，**p<0.01，***p<0.001

After a simple slope analysis, the regulation effects are plotted in Figures 2 and 3.

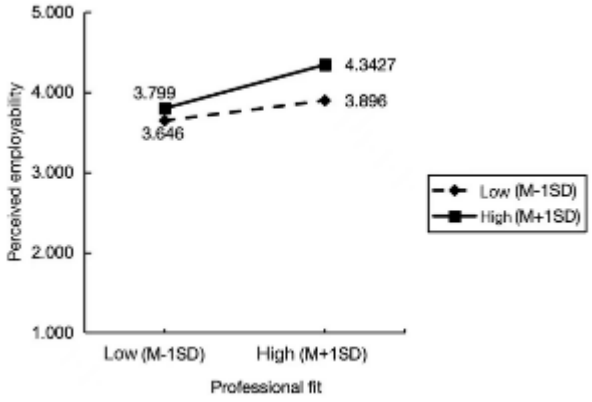

Figure 2. The moderating effect of extracurricular practical activities on the relationship between professional fit and perceived employability

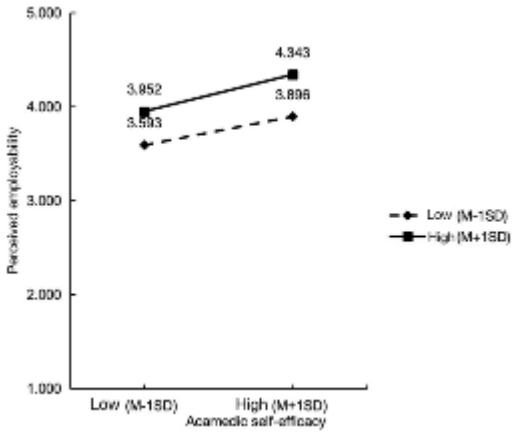

Figure 3. The moderating effect of extracurricular practical activities on the relationship between academic self-efficacy and perceived employability

Discussion and Conclusions

Starting from the theory of professional embeddedness, this study selected professional fit as the independent variable, constructed a theoretical model of undergraduates' role in perceived employability through academic self-efficacy, and examined the moderating effect of extracurricular practical activities. This study advances the scope of application of major embeddedness theory and further enriches the antecedents of perceived employability.

Firstly, our findings reveal a significant positive association between undergraduates' professional fit and their perceived employability, affirming Hypothesis H1. Specifically, when students perceive a strong alignment between their interests and their chosen major, they report heightened senses of employability. Currently, embeddedness theory has been shown to be useful in explaining persistence in the labor force (Coetzee and Oosthuizen, 2012), its application to understanding students' perceived employability through the lens of professional embedding remains uncharted territory. This study's discoveries align with theoretical predictions of professional embedding, empirically enriching our understanding of how professional fit shapes perceived employability.When students mentally and behaviorally assimilate into their academic domains, immersing themselves in their majors, they exhibit enthusiasm, passion, and utilize personal competencies. They engage fully in the learning process, thereby enhancing their professionalism and skills, which in turn bolsters confidence and overall employability.

Secondly, our study validates Hypothesis H2 by demonstrating that academic self-efficacy serves as a mediator in the relationship between professional fit and perceived employability. Specifically, when undergraduates perceive a lower degree of fit with their major, it tends to correlate with diminished academic self-efficacy, which subsequently leads to a reduced sense of employability. This finding resonates with Social Identity Theory, which posits that identification and congruence with one's domain fosters increased confidence, enhanced self-esteem, and optimized feelings of efficacy. Complementing this, Psychological Capital Theory supports the notion that self-efficacy positively and significantly impacts perceived employability. Prior research has consistently demonstrated that individuals who bolster their self-efficacy through proactive self-management activities, including the collection of career information, solicitation of group career counseling, cultivation of social networks, and enhancement of personal skills and abilities, experience a notable elevation in their perceived employability (Chow et al., 2019).

Lastly, the findings confirm a significant moderating effect of extracurricular practical activities on the relationship between professional fit and perceived employability, supporting Hypothesis H3a. However, the moderating effect of extracurricular activities on the link between academic self-efficacy and perceived employability is found to be nonsignificant, thereby disproving Hypothesis H3b. More specifically, undergraduates who frequently engage in extracurricular activities exhibit a closer positive association between professional fit and perceived employability. Conversely, for those who only occasionally partake in such activities, the positive impact of professional fit on employability perception is marginally significant. This discrepancy may stem from the multidimensional, malleable

nature of perceived employability, which is individually driven yet fostered by institutional and societal encouragement. Research underscores students' desire for constructive extracurricular involvements during their studies to augment vocational preparedness and competitiveness (Tymon, 2013). Students appreciate integrating classroom knowledge with employer expectations, deepening their subject understanding and enabling them to visualize theoretical applications beyond academia (Capone et al., 2021). However, given the diverse nature of extracurricular activities – including club involvement, part-time work, and academic exchanges – scholars hold divergent views on their efficacy. For instance, Wilder et al. (1986) argue that excessive engagement in part-time work or social activities might divert students' attention and dampen academic enthusiasm, hindering their long-term progress.

Practical Implications

Overall, this study contributes to enhancing the strategies of higher education institutions for talent cultivation, facilitating sound career planning among students. What's more, This study makes a significant contribution to elevating the perceived employability of university graduates.

Firstly, This study reveals the pivotal role of professional fit in shaping students' employability perceptions, prompting higher education institutions to critically reflect upon and refine their academic programs, curricula, and instructional methodologies. By ensuring a closer alignment between students' learning experiences, personal interests, vocational aspirations, and labor market demands, institutions can foster an educational environment that encourages students to accrue knowledge and skills directly pertinent to future roles. Such an approach bolsters their competitive edge in the job market, thereby enhancing the quality and effectiveness of talent cultivation, and propelling reforms aimed at optimizing the supply side of education.

Secondly, this study highlights the crucial role of self-efficacy. Specifically, for undergraduates with low academic self-efficacy, one pathway involves enhancing professional fit to alleviate such deficits. This can be achieved by selecting majors that resonate with individual interests, preferences, abilities, and strengths, thereby fostering heightened self-efficacy. Alternatively, focusing directly on enhancing academic self-efficacy is also advisable. In line with Social Cognitive Theory, variations in self-efficacy arise from individual differences (such as mastery experiences, emotional and physiological states) and cognitive elements (including social persuasion and vicarious experiences) (Van Dinther et al., 2011). Thus, undergraduates can mitigate the adverse impact on academic self-efficacy from perceived challenges (like poor academic performance or low employability) by reframing their perspectives on these issues. Simultaneously, through diligent study and practice, they must actively work to boost academic self-efficacy. This includes overcoming obstacles, embracing feedback, cultivating self-awareness, managing emotions effectively, and expressing emotions appropriately. These actions serve to fortify students' belief in their academic capabilities and, ultimately, their career prospects.

Thirdly, this study's findings lend depth to the adage "practice makes perfect," offering insights for policymakers and informing strategies for employment services. Policymakers can leverage the established correlation between professional fit and perceived employability to devise or adjust policies aimed at enhancing major-person-job alignment, intensifying career

guidance, and fostering university-enterprise collaborations. These measures aim to alleviate the employment pressures faced by university graduates.At the same time, institutions can incentivize and facilitate student engagement in extracurricular practical activities through various avenues: providing diverse opportunities for real-world exposure (industry visits, cooperative education programs), emphasizing the value of practical experience (ideological and political education, experience-sharing forums), offering incentives and recognition (award certificates, internship attestations), and instituting industry mentorship programs.From the student perspective, active participation in extracurricular activities necessitates honing critical thinking and self-management skills. Students should actively seek out and engage in activities tailored to their interests and needs, thereby progressively enhancing practical skills and employability.

Limitations and Future Directions

This study has a few limitations. First, the sample mostly comprised undergraduate students.Therefore, the homogeneity and limited size of the sample may cohort restrains the generalizability of the study's conclusions. To enhance external validity, future research should broaden its scope to encompass diverse student populations across various academic levels, including graduate students. Second, this study did not confirm a few of the hypotheses. One possible reason is that measuring extracurricular activities is fraught with ambiguity due to their diverse nature and the dual potential for positive and negative impacts. Subsequent research should provide clearer operational definitions of extracurricular activities to minimize participant confusion. Third, relying solely on self-reported data introduces the possibility of bias due to social desirability and other factors. Thus, the subjective nature of the data source may have been imparted a certain degree of influence on the study's findings. To strengthen reliability, future research could incorporate multiple data sources, such as objective records, faculty evaluations, or third-party assessments, to counterbalance potential biases inherent in singular reliance on subjective reporting.

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