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Personality Traits and Work Performance of Teachers in Universities in China

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Abstract
This study aims to explore how the Big Five personality traits (BFPT) influence the work performance (WP) of teachers in universities and establish the mediating role of sense of belonging (SB) and used purposive sampling to survey 391 application-oriented university teachers in China and conducted analysis using PLS-SEM. The results showed that BFPT -Extraversion, Agreeableness, Neuroticism, and Openness were significantly positively correlated with teachers' WP, while Conscientiousness had no significant relationship with performance. In addition, the SB showed a mediating effect in all the above significant paths. This study includes recommendations, limitations and future research prospects. (96 words)

Keywords: Big Five Personality Traits; Work Performance; Sense of Belonging; Management of Application-Oriented University Teachers

1.0 Introduction

1.1 Research Background
In the context of building a strong education-oriented nation in the new era, the core of higher education lies in the development of the teaching faculty and the continuous improvement of teacher performance(Cainday et al., 2023). As a crucial force in serving regional economic and social development(Gao et al., 2024), applied universities present unique and practical value in examining the relationship between faculty personality traits and job performance. University teachers in applied institutions not only fulfill the traditional responsibilities of imparting knowledge and solving doubts, but also shoulder the tasks of scientific research, talent cultivation, and community service. Their performance levels directly determine the scientific innovation capacity, teaching quality, and the effectiveness of applied talent training in these institutions(Zamani & Pouratashi, 2017).

Personality traits influence individuals' behaviors at work. They not only affect the type of jobs individuals are likely to choose but also impact their job performance. The Big Five personality traits(Kuo et al., 2024), formally named by McCrae and Costa (1985), include Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness (ON). In the field of organizational behavior, studies predicting job performance through personality traits span a wide range of professions. In the context of university teaching, it is generally believed that teachers who are extroverted, articulate, responsible to students, and intellectually active tend to receive higher evaluations in classroom teaching, whereas more introverted and socially reserved teachers often achieve better results in scientific research.

In addition to personality traits, does a sense of belonging influence teachers' job performance? A sense of belonging refers to the feeling of being an inseparable part of a community or organization in which individuals feel valued, accepted, and supported (Gao et al., 2024). Research has shown that a sense of belonging is an intrinsic factor in improving teachers' job performance. Teachers with a strong sense of belonging are more likely to generate intrinsic motivation and devote themselves wholeheartedly to teaching, thereby enhancing their performance.

So, in the development of faculty teams in applied universities, what is the mechanism by which a sense of belonging influences the relationship between personality traits and job performance? Currently, the mediating role of teachers' sense of belonging in the

relationship between personality traits and job performance has not been fully explored—especially in the context of applied university development.

1.2 Problem Statement
Although the relationship between personality traits and job performance has been extensively documented in the literature, covering a wide range of professions (such as police officers, managers, salespeople, and skilled technicians), most of these studies focus on various occupational groups and their specific personality-performance dynamics. In the education sector, existing research predominantly centers on primary and secondary school teachers, as well as preschool educators, while studies focusing specifically on faculty in applied universities remain limited. Moreover, although a sense of belonging is recognized as a key intrinsic factor in enhancing teacher job performance, its mediating role in the relationship between personality traits and job performance remains unclear(Gao, 2024). Therefore, investigating the mediating effect of a sense of belonging in the relationship between personality traits and job performance holds significant value for applied universities. It can inform recruitment and selection strategies, support faculty development, optimize talent structures, and advance performance-based reforms in higher education institutions. The objectives of this study are as follows: 1)To examine the relationship between personality traits and job performance among faculty members in applied universities.2)To investigate the mediating role of sense of belonging in the relationship between personality traits and job performance.3)To explore how different personality traits influence faculty members' sense of belonging in applied universities.

2.0 Literature Review

2.1 Current Developments
In recent years, with the advancement of the national strategy to build a strong education system, universities have continuously introduced reform initiatives to improve faculty development, and performance evaluation indicators for teachers have become increasingly rigorous(Gao, 2024). In particular, faculty members at applied universities are required not only to meet demanding teaching and research performance targets but also to proactively contribute to regional economic development. This has led to a growing polarization among teachers in the education sector, manifesting in either excessive competition ("involution") or passive disengagement ("lying flat"), both of which hinder the high-quality development of applied universities. To explore the underlying causes of this phenomenon, increasing attention is being paid to university faculty, prompting scholars to examine how psychological constructs such as personality traits and sense of belonging influence job performance.

2.2 Theoretical Foundation
This study is grounded in two major theoretical frameworks: the Big Five Personality Theory and Social Identity Theory. The Big Five Personality Theory posits that five broad dimensions—ON, Conscientiousness, Extraversion, Agreeableness, and Neuroticism—effectively capture the variability in human personality (John (John & Srivastava, 1999) & Srivastava, 2021). These traits are associated with various work-related outcomes, including job satisfaction, organizational commitment, and work performance.
On the other hand, Social Identity Theory emphasizes the importance of group membership and a sense of belonging as key factors influencing individual behavior within organizations (Tajfel & Turner, 2004). According to this theory, part of an individual's identity is derived from their membership in social groups, and a strong sense of belonging can enhance commitment to the organization and improve job performance (Ashforth & Mael, 1989). By integrating these two theories, this study aims to investigate how personality traits and sense of belonging jointly affect the job performance of faculty members in applied universities.

2.3 Hypotheses Development
Personality Traits and WP
Extensive research suggests that personality traits are closely associated with WP, either directly or indirectly. In the context of applied university faculty, traits such as Openness (ON), Conscientiousness (CT), Extraversion (ET), and Agreeableness (AL) have been found to positively influence various dimensions of WP, including teaching effectiveness, research output, and professional engagement. These traits contribute to adaptability, collaboration, responsibility, and proactive behavior—key attributes in application-oriented university environments. In contrast, Neuroticism (NT) is often negatively associated with WP due to emotional instability, or shows no significant correlation in some academic settings. Therefore, the following hypotheses are proposed:
H1a: ON is positively associated with WP among faculty members in applied universities.
H1b: CT is positively associated with WP among faculty members in applied universities.
H1c: ET is positively associated with WP among faculty members in applied universities.
H1d: AL is positively associated with WP among faculty members in applied universities.
H1e: NT is positively associated with WP among faculty members in applied universities.
Personality Traits and Sense of Belonging
Sense of belonging (SB), defined as the feeling of being accepted, valued, and emotionally connected within a group or organization, plays a crucial role in faculty members' psychological well-being and institutional commitment. According to Baumeister & Leary (2020), SB is significantly shaped by personality traits. Faculty with high levels of Openness (ON), Conscientiousness (CT), Extraversion (ET), and Agreeableness (AL) are more likely to build positive relationships, feel integrated within the academic community, and experience a stronger SB (Gao et al., 2023). These traits promote empathy, cooperation, and engagement. In contrast, individuals with high Neuroticism (NT) often experience emotional instability, anxiety, or social withdrawal, which may hinder their ability to feel included or supported. Thus, the following hypotheses are proposed:

H2a: ON is positively associated with SB.
H2b: CT is positively associated with SB.
H2c: ET is positively associated with SB.
H2d: AL is positively associated with SB.
H2e: NT is negatively associated with SB.
Sense of Belonging as a Mediator
Sense of belonging (SB), defined as the perception of being accepted, respected, and included within a professional community, is increasingly recognized as a key psychological resource in academic workplaces. Prior studies have demonstrated that SB significantly enhances job satisfaction, organizational commitment, and overall performance (Lambert & Morrison, 2022; Jones & O'Brien, 2023). In the context of applied universities—where faculty are often subject to high-performance expectations across teaching, research, and service—SB may buffer stress and promote intrinsic motivation, thereby facilitating stronger work performance (WP). Importantly, SB may function as a psychological bridge through which personality traits influence WP. Faculty with higher levels of Openness (ON), Conscientiousness (CT), Extraversion (ET), and Agreeableness (AL) are more likely to feel connected to their institutions, which in turn enhances their engagement and productivity. Conversely, individuals high in Neuroticism (NT) may struggle to develop a strong SB, potentially diminishing the positive influence of other traits. Therefore, the following hypotheses are proposed:
H3: SB is positively associated with WP among faculty members in applied universities.
H4a: SB mediates the relationship between ON and WP.
H4b: SB mediates the relationship between CT and WP.
H4c: SB mediates the relationship between ET and WP.
H4d: SB mediates the relationship between AL and WP.
H4e: SB mediates the relationship between NT and WP.
This hypothesis model aims to establish a comprehensive understanding of how faculty members' psychological characteristics contribute to their performance through both direct and indirect pathways, providing implications for talent selection, faculty development, and institutional policy reform in applied higher education settings. The research model of this study is as follows:
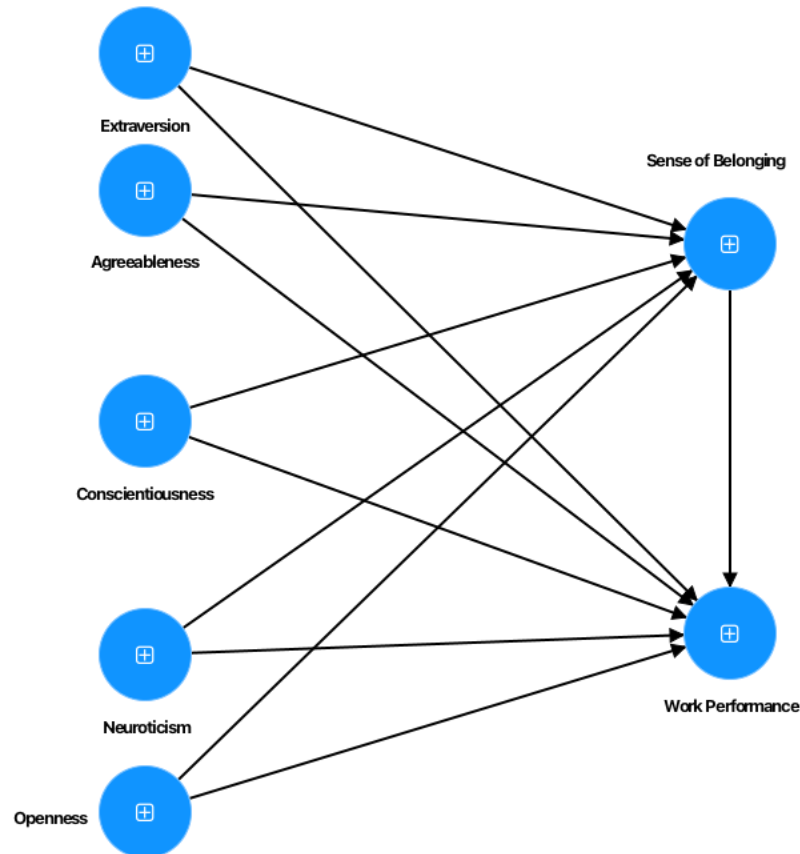

Fig. 1: Research Model

3.0 Methodology

3.1 Sampling and Data Collection

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The research targeted a population of 75,000 application-oriented university teachers in Sichuan Province, China. Owing to the vast scale and geographic dispersion of this group, a purposive sampling method was adopted to select SMEs with active participation in digital transformation and collaborative innovation. This non-random sampling technique was appropriate for selecting participants with specialized expertise aligned with the study's objectives (Palinkas et al., 2015). G*Power 3.1.9.7 was utilized, applying power of 0.95, computed minimum sample size was 237. Supported by local industrial zones and government agencies, the research team distributed 600 paper-based questionnaires through face-to-face administration between February and May 2025. This data collection method enhanced item clarity and reduced the likelihood of missing data. Ultimately, 391 valid responses were obtained, resulting in 65.17% response rate. Among the respondents, 29.62% (n = 93) were Lecturers, 61.14% (n = 192) were Associate Professors, and 9.24% (n = 29) were Professors.

3.2 Measurement Instruments and Data Analysis Techniques
All constructs in this study were evaluated using multiple items based on prior validated scales, measured on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). To ensure accuracy across languages, a double translation procedure following Brislin (1986) was used, translating the English version into Chinese and then back-translated to verify semantic equivalence. The Big Five personality traits consist of five variables, each measured by four items adapted from John and Srivastava (1999).WP was measured using five items derived from Lambert & Morrison (2022), highlighting digital integration, operational redesign, and business model shifts. The measurement of SB relied on four items adapted from Hom et al. (2021). Before large-scale data collection, a small-scale pilot with 40 SMEs was conducted to refine the instrument. The internal consistency of each construct was verified with Cronbach's alpha exceeding 0.70 (Hair et al., 2021), indicating strong reliability: NQPF = 0.92, DT = 0.89, CIP = 0.87. To address concerns related to common method bias (CMB). Harman's single-factor test results indicated that the first factor accounted for only 32.9% of the total variance, which is below the critical threshold of 50%, suggesting that CMB was not a significant concern (Podsakoff et al., 2003). This study combination of SPSS and PLS-SEM was utilized to analyze the collected data.

4.0 Findings

4.1 Descriptive Analysis Results
The descriptive statistics and correlation analysis. The mean for ET, AL,CT,NT,ON, SB and WP were 4.271, 4.527, 4.132, 4.651, 4.632, 4.712 and 4.437, respectively, suggesting that respondents generally held positive perceptions of these dimensions. By Kline (2011), the skewness and kurtosis values for all variables fell within acceptable thresholds (i.e., skewness < 3.0 and kurtosis < 10.0), indicating no significant deviations from normality. Moreover, the strongest bivariate correlation observed was 0.898, which did not exceed the critical value for multicollinearity concerns, thus confirming the appropriateness of the dataset for further multivariate analysis.
4.2 Measurement Model Results
The measurement model was first tested for four aspects: indicator reliability, construct reliability, convergent validity, and discriminant validity. As presented in Table 1 and Figure 2, all factor loadings ranged from 0.750 to 0.911, surpassing the 0.70 threshold (Hair et al., 2022), indicating satisfactory item reliability. In line with Rahman et al. (2020)), Cronbach's alpha and CR were used to assess internal consistency, with all values exceeding the 0.70 standard (Nunnally & Bernstein, 1994). These results confirm robust reliability and stable measurement across constructs.

Table 1. Construct validity and reliability.

Structure	Items	Factor Loadings	Alpha	CR	AVE
Agreeableness	AL1	0.883	0.880	0.917	0.735
	AL2	0.844			
	AL3	0.822			
	AL4	0.879			
Conscientiousness	CT1	0.902	0.893	0.926	0.758
	CT2	0.879			
	CT3	0.827			
	CT4	0.873			
Extraversion	ET1	0.831	0.851	0.899	0.690
	ET2	0.835			
	ET3	0.823			
	ET4	0.834			
Neuroticism	NT1	0.911	0.899	0.930	0.768
	NT2	0.867			
	NT3	0.859			
	NT4	0.867			
Openness	ON1	0.870	0.855	0.902	0.696
	ON2	0.837			
	ON3	0.825			
	ON4	0.804			
Work Performance	WP1	0.786	0.872	0.907	0.662

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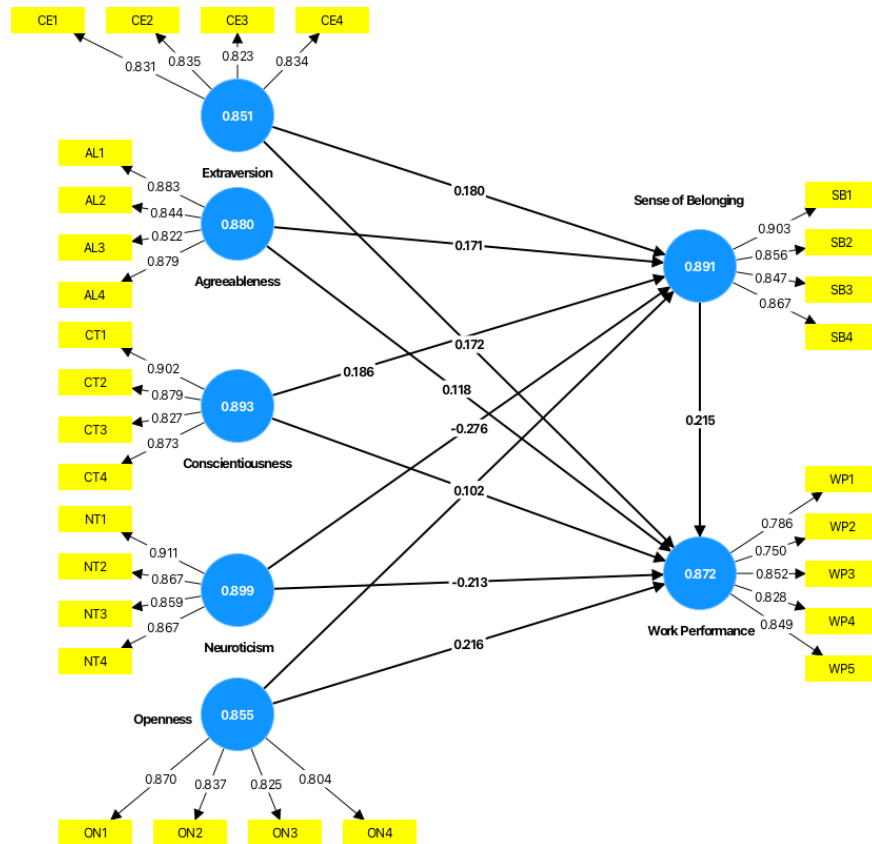| | WP2 | 0.750 | | | |
	WP3	0.852			
	WP4	0.828			
	WP5	0.849			
Sense of Belonging	SB1	0.903	0.891	0.925	0.754
	SB2	0.856			
	SB3	0.847			
	SB4	0.867			

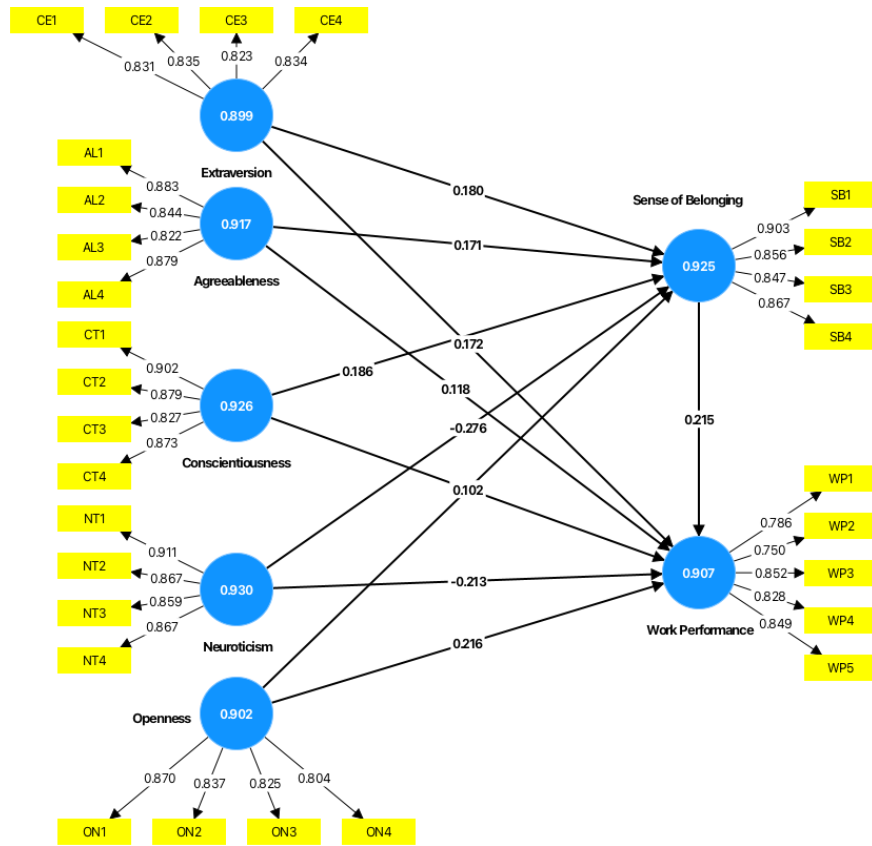
Fig. 2: Factor Loadings and Cronbach's alpha

Fig. 3 Factor Loadings and Composite Reliability

Convergent validity was assessed using AVE values, which ranged from 0.662 to 0.768, exceeding the 0.50 cutoff (Hair et al., 2022). For discriminant validity, the HTMT criterion was applied following Henseler et al. (2016), with all values falling below 0.85, indicating sufficient distinction between constructs. Additionally, all VIF scores were under 5 (see Table 2), confirming no multicollinearity and supporting the model's robustness (Hair et al., 2022).
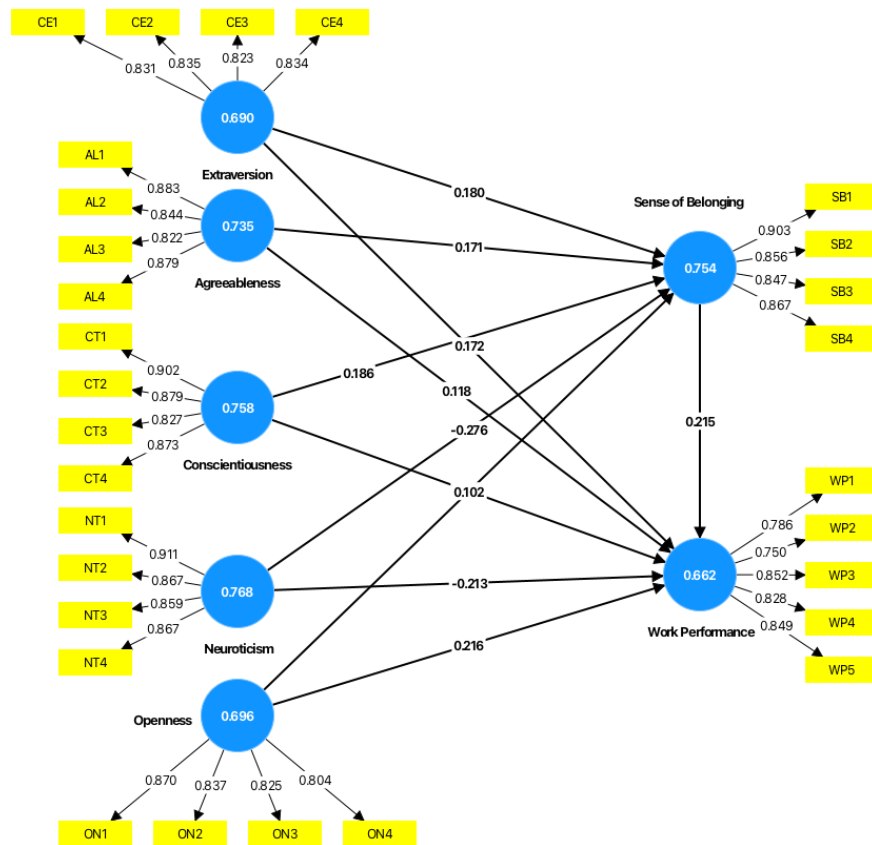
Fig. 4 Factor Loadings and AVE.

Table 2. HTMT criterion and VIF.

	AL	CT	ET	NT	ON	SB	VIF
CT	0.459						1.237
ET	0.559	0.383					1.237
NT	0.425	0.443	0.508				1.342
ON	0.378	0.471	0.431	0.399			1.391
SB	0.533	0.527	0.559	0.592	0.460		1.451
WP	0.532	0.463	0.609	0.605	0.565	0.642	1.324

4.3 Structural Model Results
Once the reliability and validity of the measurement model were confirmed, the structural model was evaluated using SmartPLS through a bootstrapping procedure with 5000 resamples (Hair et al., 2022). This stage focused on testing the hypothesized relationships by examining path coefficients along with their significance values. Hypotheses were considered supported when the p-value was less than 0.05 or the t-statistic exceeded 1.96 (Hair et al., 2022). Detailed outcomes of this analysis are shown in Table 3 and illustrated in Figure 4.

Table 3. Direct and indirect hypotheses testing results.

NO.	Structural Path	Coefficient	T-statistics	Test result
H1a	ON→ WP	0.216***	4.711	Supported
H1b	CT → WP	0.026	0.575	Rejected
H1c	ET → WP	0.172***	3.619	Supported
H1d	AL → WP	0.118**	2.395	Supported
H1e	NT→ SB	-0.276***	5.554	Supported
H2a	ON→ SB	0.102**	2.120	Supported
H2b	CT → SB	0.186***	3.919	Supported
H2c	ET → SB	0.180***	3.963	Supported
H2d	AL → SB	0.171***	3.352	Supported
H2e	NT→ SB	-0.276***	5.554	Supported

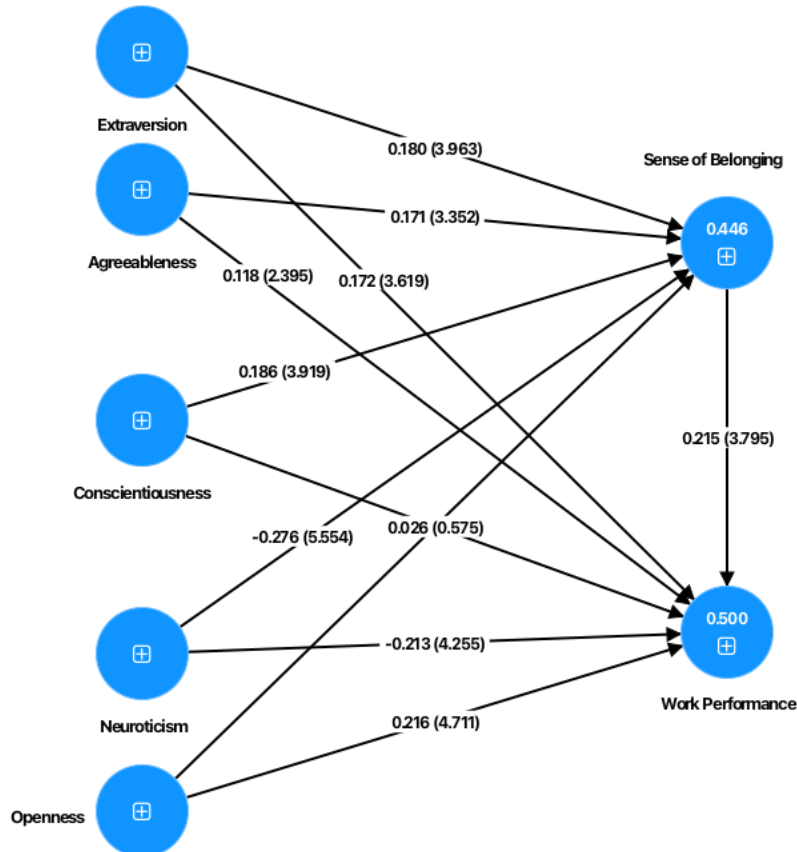| H3	SB→WP	0.269***	12.676	Supported
H4a	ON→ SB→WP	0.022	1.812	Rejected
H4b	CT → SB→WP	0.040**	2.719	Supported
H4c	ET → SB→WP	0.039**	2.792	Supported
H4d	AL → SB→WP	0.037**	2.472	Supported
H4e	NT→ SB→WP	-0.060***	2.984	Supported

1 Notes: *p <0.05, **p <0.01, ***p <0.001 (two-tailed test).

Fig. 4 Structural model(Path coefficients & T values & R^2)

Table 4 reports the predictive capacity of the model using R² and Q² indicators. Following Cohen's (1992) guideline, an R² above 0.26 indicates meaningful explanatory power. The Q² values for digital transformation (0.187) and collaborative innovation performance (0.340) were positive, verifying the model's predictive relevance. Furthermore, the SRMR value of 0.061 was well below the 0.10 threshold, indicating satisfactory model fit.

Table 4. Predictive relevance of the model.

	R Square	Q2 (= 1-SSE/SSO)
SB	0.446	0.201
WP	0.500	0.281

5.0 Discussion

Among the five traits, Openness (ON), Extraversion (ET), and Agreeableness (AL) significantly and positively influenced WP. Faculty with high Openness are more likely to adopt innovative teaching methods and interdisciplinary research, aligning with the creative and practice-oriented demands of application-based universities (LePine et al., 2020; Chen, 2018). Extraverted teachers tend to actively engage in classroom discussions, collaborative research, and community service, enhancing their overall performance. Similarly,

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Agreeableness fosters harmonious relationships with students and colleagues, facilitating teamwork and classroom effectiveness. Unexpectedly, Conscientiousness (CT) showed no direct impact on WP. While it is often positively associated with performance in Western settings (Barrick & Mount, 2021), the rigid performance metrics in Chinese institutions may limit the effectiveness of diligence and discipline if they are not directly rewarded. Neuroticism (NT) did not directly affect WP, aligning with prior research indicating that emotional instability impacts performance only when it impairs interpersonal or stress-coping capacity (Mount et al., 2005). All five personality traits significantly predicted SB. ON, CT, ET, and AL were positively associated with SB, indicating that faculty with these traits are more likely to feel emotionally connected and accepted within their institutions. These traits promote collaboration, empathy, and openness to community-building (Baumeister & Leary, 2020). Conversely, NT negatively predicted SB, suggesting that emotionally unstable individuals are more likely to feel alienated and less integrated into the organizational culture (Tajfel & Turner, 1986).

SB was found to be a significant positive predictor of WP, supporting its mediating role. Mediation analysis confirmed that SB mediates the effects of CT, ET, AL, and NT on WP. This implies that faculty members with positive personality traits may perform better not only because of their inherent characteristics but also because they feel psychologically connected to their institution. For example, extraverted teachers may benefit from increased social interactions, which in turn strengthen their SB and boost performance. Interestingly, SB did not mediate the ON–WP relationship. This suggests that the performance-enhancing effects of Openness may operate through intrinsic motivation or intellectual engagement rather than institutional integration.

The results must be interpreted in light of the unique institutional and cultural setting of Chinese application-oriented universities. These institutions emphasize regional service, practical innovation, and outcome-based evaluation. In this context, traits such as sociability, adaptability, and collaboration are particularly valuable. Furthermore, the Confucian cultural emphasis on harmony and collectivism reinforces the importance of SB. Faculty who perceive alignment with institutional values and feel supported are more likely to perform well across teaching, research, and social service dimensions.

6.0 Conclusion& Recommendations

6.1 Theoretical Implications
This research contributes to personality and organizational behavior theory by integrating the Big Five model with Social Identity Theory. It shows that personality traits affect WP both directly and indirectly through SB, offering a more contextualized understanding of psychological mechanisms in educational settings. Notably, the indirect-only effect of Conscientiousness through SB challenges Western-centric assumptions and highlights the importance of institutional integration in collectivist cultures like China. The study thus supports the call for more culturally embedded and psychologically inclusive performance models.

6.2 Policy and Managerial Implications
Practically, the findings suggest integrating personality assessments into faculty recruitment and development. Institutions should foster inclusive environments that enhance SB through mentorship, recognition, and collaborative opportunities. Support for emotionally sensitive staff—especially those high in Neuroticism—should include mental health services and stress management. Furthermore, performance evaluations should go beyond rigid metrics to reflect teaching quality and community contribution. Leadership training should focus on inclusive and empowering practices that strengthen belonging and motivation.

6.3 Limitations and Future Research Avenues
This study has limitations. The cross-sectional design restricts causal inference; longitudinal studies are needed to track changes over time. The geographic focus on Sichuan limits generalizability; future research should include diverse institutional contexts. To reduce self-report bias, future studies could incorporate supervisor ratings or objective performance data. Additionally, moderating variables like leadership style or organizational climate may further clarify the conditions under which personality and SB influence WP. Cross-cultural comparisons would also deepen understanding of context-specific dynamics.

Acknowledgement

Paper Contribution to Related Field of Study
This study reveals how personality traits influence faculty work performance through sense of belonging, contributing to theoretical and empirical research in educational management and organizational behavior.

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