



วารสารบริหารธุรกิจเทคโนโลยีมหานคร

MUT Journal of Business Administration

ปีที่ 23 ฉบับที่ 1 (มกราคม – มิถุนายน 2569)

Volume 23 Number 1 (January – June 2026)

**Factors Influencing Job Satisfaction in Chinese Private Universities:
The Mediating Role of Work Engagement**
**ปัจจัยที่มีผลต่อความพึงพอใจในงานของมหาวิทยาลัยเอกชนในประเทศจีน:
บทบาทตัวกลางของความผูกพันในการทำงาน**

Received: March 18, 2026

Revised: May 17, 2026

Accepted: May 19, 2026

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ABSTRACT

This study investigates the impact of job characteristics, perceived organizational support, self-efficacy, and social support on job satisfaction among teachers in private universities in Shandong Province, China, with work engagement as a mediating variable. Using a mixed-methods approach, data were collected from 400 full-time teachers at eight private undergraduate institutions through structured questionnaires and in-depth interviews. Structural equation modeling (SEM) was employed to test the research hypotheses. The results revealed that work engagement played a significant partial mediating role between the four antecedent variables and job satisfaction, with the mediation proportion stabilizing between 49.3% and 50.7%. Job characteristics demonstrated the strongest effect on work engagement ($\beta = 0.31$, $p < 0.001$), followed by self-efficacy ($\beta = 0.29$, $p < 0.001$), perceived organizational support ($\beta = 0.27$, $p < 0.001$), and social support ($\beta = 0.20$, $p <$

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0.001). The findings provide theoretical contributions to the Job Demands-Resources theory and offer practical implications for human resource management in resource-constrained private higher education institutions. Additionally, qualitative thematic analysis of in-depth interviews with 23 key informants revealed five core themes: autonomy in content sequencing, real-time classroom feedback, ritualistic training, interdisciplinary collaboration, student participatory feedback, and adaptive perspectives on salary satisfaction. These qualitative findings complement and explain the quantitative results, illuminating why job characteristics have stronger effects on younger faculty and why a gap exists between formal and substantive organizational support.

Keywords: Job Characteristics, Perceived Organizational Support, Self-Efficacy, Social Support, Work Engagement, Innovative Engagement, Job Satisfaction

บทคัดย่อ

งานวิจัยนี้ศึกษาผลกระทบของลักษณะงาน การรับรู้การสนับสนุนจากองค์กร ความเชื่อมั่นในตนเอง และการสนับสนุนทางสังคม ต่อความพึงพอใจในการทำงานของอาจารย์ในมหาวิทยาลัยเอกชนในเขตภาคกลางตอนบน ประเทศไทย โดยมีส่วนร่วมในการทำงานเป็นตัวแปรตัวกลาง ใช้วิธีการวิจัยแบบผสมผสาน เก็บรวบรวมข้อมูลจากอาจารย์ประจำ 400 คน จากสถาบันระดับปริญญาตรีเอกชน 8 แห่งผ่านแบบสอบถามที่มีโครงสร้างและการสัมภาษณ์เชิงลึก ใช้แบบจำลองสมการโครงสร้างในการทดสอบสมมติฐานการวิจัย ผลการวิจัยพบว่า มีส่วนร่วมในการทำงานมีบทบาทเป็นตัวกลางบางส่วนที่มีนัยสำคัญระหว่างตัวแปรต้นทั้งสี่กับความพึงพอใจในการทำงาน โดยสัดส่วนการเป็นตัวกลางมีค่าอยู่ระหว่าง 49.3% ถึง 50.7% ลักษณะงานแสดงให้เห็นถึงผลกระทบที่แข็งแกร่งต่อความผูกพันในการทำงาน ($\beta = 0.31, p < 0.001$) รองลงมาคือความเชื่อมั่นในตนเอง ($\beta = 0.29, p < 0.001$) การรับรู้ถึงการสนับสนุนจากองค์กร ($\beta = 0.27, p < 0.001$) และการสนับสนุนทางสังคม ($\beta = 0.20, p < 0.001$) ผลการวิจัยนี้ให้การสนับสนุนทางทฤษฎีแก่ทฤษฎีความต้องการและทรัพยากรของงาน และเสนอข้อคิดเห็นเชิงปฏิบัติสำหรับการบริหารทรัพยากรบุคคลในสถาบันอุดมศึกษาเอกชนที่มีทรัพยากรจำกัด นอกจากนี้ การวิเคราะห์เชิงคุณภาพตามหัวข้อจากบทสัมภาษณ์เชิงลึกกับผู้ให้ข้อมูลสำคัญ 23 คน เผยให้เห็น 5 หัวข้อหลัก ได้แก่ ความเป็นอิสระในการจัดลำดับเนื้อหา การให้ข้อเสนอแนะในชั้นเรียนแบบเรียลไทม์ การฝึกอบรมตามพิธีกรรม การทำงานร่วมกันแบบสหวิทยาการ การให้ข้อเสนอแนะโดยนักศึกษา และความชอบที่ปรับตัวได้เกี่ยวกับความพึงพอใจในเงินเดือน ผลการวิจัยเชิงคุณภาพเหล่านี้ช่วยเสริมและอธิบายผลลัพธ์เชิงปริมาณ โดยชี้ให้เห็นว่าเหตุใดลักษณะงานจึงมีผลกระทบต่อคณาจารย์รุ่นใหม่มากกว่า และเหตุใดจึงเกิดช่องว่างระหว่างการสนับสนุนจากองค์กรในรูปแบบที่เป็นทางการและการสนับสนุนจากองค์กรอย่างแท้จริง

คำสำคัญ: ลักษณะงาน การรับรู้ถึงการสนับสนุนจากองค์กร ความเชื่อมั่นในตนเอง การสนับสนุนทางสังคม ความผูกพันในการทำงาน การมีส่วนร่วมเชิงนวัตกรรม ความพึงพอใจในงาน

Introduction

In recent years, although private colleges and universities in Shandong Province have made remarkable progress in scale expansion and enrollment, the problem of human resource management has gradually become a key bottleneck restricting sustainable development. The single source of funding is one of the core contradictions: private universities mainly rely on tuition income (accounting for more than 80%), while government financial subsidies and social donations are insufficient (Zhao, 2022). This funding structure leads to a significant gap between its salary and welfare system and that of public universities. For example, the average salary of teachers in private colleges and universities in Shandong Province is 25% lower than that in public colleges and universities, and the proportion of contributions to the five insurances and one fund, housing subsidies and other benefits are generally reduced (Zhao, 2022).

This gap directly affects the stability of the teaching staff. A tracking study on 10 private universities in Shandong shows that the average annual turnover rate of teachers from 2020 to 2022 is 18.7%, among which salary dissatisfaction is the main reason for resignation (Huang, 2023). At the same time, the lack of career pathways is fueling teacher dissatisfaction. There is a general tendency of "paying more attention to teaching than to scientific research" in private colleges and universities, and the investment in scientific research funds is less than one-third of that in public colleges and universities (Liu and Zhou, 2019), which makes it difficult for teachers to achieve professional title promotion through the accumulation of academic achievements.

In terms of job satisfaction, the employees of private colleges and universities have certain troubles. Due to the above material deficiencies, employees may have a negative view of their work environment, career prospects, etc. Many teachers in private colleges and universities report that they are faced with greater pressure of teaching tasks, but receive limited support. A survey of teachers in private colleges and universities in Shandong Province shows that about 60% of the teachers believe that there is an imbalance in the distribution of teaching resources, which affects their teaching quality and thus reduces their job satisfaction (Li and Zhang, 2021).

For private colleges and universities, improving employees' job satisfaction and work involvement is the key to enhance their competitiveness. Through in-depth research on the effects of organizational support, self-efficacy and social support on work engagement, it can provide theoretical basis for schools to formulate more effective incentive policies. At present, although there are some achievements in the research on the job satisfaction and job engagement of employees in private colleges and universities, there are relatively few studies on the mediating effects of the three factors of organizational support, self-efficacy and social support, especially for the specific area of private colleges and universities in Shandong Province. This study aims to fill this gap and provide a reference example for subsequent similar studies.

Research Gap: While existing studies on private universities in China have examined job satisfaction from general perspectives, this study is distinct in focusing specifically on Shandong Province—a region that combines rapid educational expansion with unique socio-economic characteristics. Shandong has the highest concentration of private universities in northern China (42 institutions), yet faces more severe resource constraints compared to eastern coastal provinces like Jiangsu and Zhejiang. Unlike previous studies that examined organizational support, self-efficacy, and social support as isolated factors, this study integrates all four antecedents through the mediating lens of work engagement, providing a more comprehensive understanding of the mechanism through which job characteristics and psychosocial factors jointly influence teacher satisfaction in resource-constrained environments. Furthermore, the mixed-methods design, incorporating qualitative insights from 23 in-depth interviews, allows for a deeper exploration of the underlying reasons behind statistical relationships, particularly the phenomenon of adaptive preferences regarding salary satisfaction.

Research Questions

This study aims to answer the following research questions:

- (1) Whether job characteristics, perceived organizational support, self-efficacy and social support affects work engagement in private universities in Shandong Province, China?
- (2) Whether job characteristics, perceived organizational support, self-efficacy and social support affects job satisfaction in private universities in Shandong Province, China?

(3) Whether work engagement will mediate the effect of job characteristics, perceived organizational support, self-efficacy and social support on job satisfaction in private universities in Shandong Province, China?

These questions will help to reveal the important role of work involvement in the education management of private colleges and universities, and provide substantial theoretical support and practical strategies for improving the job satisfaction of faculty and staff.

Research Objectives

(1) To identify the level of job characteristics, perceived organizational support, self-efficacy, social support, work engagement and job satisfaction in private universities in Shandong Province, China.

(2) To identify the relationship between jobs characteristics, perceived organizational support, self-efficacy, social support and job satisfaction in private universities in Shandong Province, China.

(3) To investigate whether work engagement will mediate the effect of job characteristics, perceived organizational support, self-efficacy and social support on job satisfaction in private universities in Shandong Province, China.

Benefits of Research

This study has important significance in the following aspects:

Theoretical Contribution: Theoretically, from the perspective of job engagement, this study explores how job engagement influences job satisfaction by mediating job characteristics, organizational support, self-efficacy and social support. This helps to enrich the theoretical framework of the relationship between job engagement and job satisfaction, and provides a new theoretical perspective for the field of organizational behavior and human resource management.

Empirical Research: In terms of empirical research, this study uses quantitative methods to verify the hypotheses, and analyzes the mediating effect through structural equation model (SEM) to reveal the specific role of job engagement in the formation mechanism of teachers' job satisfaction. This provides insight into the key factors affecting teacher satisfaction in the context of education management.

Management Practice: In terms of management practice, this study puts forward specific suggestions for administrators of private colleges and universities in Shandong to help them optimize their working environment and improve teachers' work engagement, so as to improve education quality and school performance. These suggestions are based on the research results, practical and instructive, and can provide references for university administrators to formulate more effective human resource strategies.

Social Impact: Finally, this study is helpful to improve the level of education management, improve the working conditions and quality of life of teachers, and thus have a positive impact on society. By improving the job satisfaction of teachers, their teaching enthusiasm and professional ability can be enhanced, thus improving the learning effect of students and the overall quality of education.

Regional Academic Contribution: This study offers significant regional academic value by contextualizing the Job Demands-Resources (JD-R) theory within Asia's private higher education sector. While existing literature has predominantly focused on public universities in Western contexts or enterprises in Eastern contexts, this research extends the theoretical framework to resource-constrained private institutions in Shandong Province, China—a region characterized by rapid educational privatization and severe resource limitations. The findings demonstrate that the mediating role of work engagement (49.3%-50.7%) remains robust even under conditions of funding scarcity, suggesting that the JD-R mechanism is culturally and institutionally transferable across Asian private higher education systems. For countries facing similar educational privatization challenges—such as Thailand, Malaysia, Vietnam, and India—this study provides a replicable analytical framework and evidence-based management benchmarks. The identification of adaptive preferences regarding salary satisfaction further contributes to regional scholarship by revealing how prolonged resource scarcity shapes teacher expectations and satisfaction metrics differently than in well-funded Western contexts, offering a critical lens for policy-makers across developing Asian economies.

Literature Review

1. Job Characteristics

Job characteristics refer to the inherent attributes of a job that influence an individual's work-related psychological states, attitudes, and behaviors (Hackman and Oldham, 2010; Grant, 2021). Hackman and Oldham's job characteristics theory posits that a job can be analyzed based on its impact on an individual's psychological experience. The components of

job characteristics include skill variety, task identity, task significance, autonomy, and feedback. In the context of Shandong private colleges, for faculty members, job characteristics determine their perception of work meaning, autonomy, and the impact of their work. Recent research has shown that job characteristics in private colleges are also influenced by the digital transformation trend, including elements such as digital teaching design and online student interaction (Zhang *et al.*, 2022).

2. Perceived Organizational Support

Perceived Organizational Support (POS) refers to employees' subjective perceptions regarding the extent to which the organization values their contributions and cares about their well-being (Eisenberger *et al.*, 2020). POS is built on the psychological contract between employees and the organization. The components of POS can be categorized into instrumental support, emotional support, informational support, and cultural support. In the digital transformation era of higher education, POS in private colleges also includes perceptions of the organization's support for digital teaching and research capabilities (Zhang *et al.*, 2022). High POS has been shown to enhance job satisfaction, improve work performance, and reduce turnover intention.

3. Self-Efficacy

Self-efficacy, a core construct in social cognitive theory, refers to an individual's belief in their capability to organize and execute the courses of action required to produce specific attainable results (Bandura, 2012; Schwarzer, 2020). In the educational domain, teacher self-efficacy is defined as a teacher's judgment of their ability to bring about desired outcomes in student learning, including aspects such as instructional strategies, classroom management, and student engagement (Tschannen-Moran and Woolfolk Hoy, 2021). With the increasing integration of digital technologies in higher education, digital self-efficacy has emerged, encompassing confidence in using online teaching platforms, developing digital teaching resources, and leveraging educational technology.

4. Social Support

Social support refers to the assistance, resources, and care that individuals obtain from their social networks, which can help them cope with stress, solve problems, and meet emotional needs (Cohen, 2004; House, 2020). Social support operates through three main mechanisms: instrumental support, emotional support, and informational support. In the context of Shandong private colleges, social support for teachers is derived from workplace

relationships, educational community interactions, and digital platforms. This study innovatively includes "student participation in immediate feedback" in the social support measurement system.

5. Work Engagement

Work engagement represents a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli *et al.*, 2010; Bakker and Demerouti, 2020). Work engagement consists of three core components: vigor (high energy and resilience), dedication (sense of significance, enthusiasm, and pride), and absorption (focused immersion in work). Recent research in the context of private colleges has identified "collaborative engagement" and "innovation engagement" as emerging components, referring to teachers' active participation in interdisciplinary collaborations, industry-university partnerships, and innovative teaching practices.

6. Job Satisfaction

Job satisfaction reflects an employee's overall affective response toward their work, encompassing feelings of contentment, fulfillment, and positive evaluation of job-related experiences (Locke, 1976; Judge *et al.*, 2020). Job satisfaction arises from the alignment between job outcomes and personal values, needs, and expectations. Key components relevant to private college teachers include intrinsic rewards, extrinsic rewards, growth and development opportunities, salary adaptability, and institutional culture and values alignment.

7. The Relationship between Job Characteristics and Job Satisfaction

Job characteristics have been consistently identified as a significant predictor of job satisfaction across various organizational contexts. According to Hackman and Oldham's (2010) job characteristics theory, jobs with high skill variety, task identity, task significance, autonomy, and feedback tend to enhance employee satisfaction. In the context of private universities in Shandong Province, research has shown that when teachers perceive their job characteristics as favorable, they experience higher levels of job satisfaction (Zhang *et al.*, 2022). The relationship between job characteristics and job satisfaction is mediated by psychological states, including experienced meaningfulness, responsibility for outcomes, and knowledge of results. Recent studies in Chinese private higher education have confirmed that job characteristics explain approximately 28% of the variance in job satisfaction among faculty members (Zhang *et al.*, 2022).

8. The Relationship between Perceived Organizational Support and Job Satisfaction

Perceived organizational support (POS) represents employees' beliefs about the extent to which their organization values their contributions and cares about their well-being. Eisenberger *et al.* (2020) demonstrated that POS creates a positive reciprocity norm, where employees feel obligated to respond favorably to supportive treatment, resulting in increased job satisfaction. In private universities, where resource constraints are common, teachers' perception of organizational support becomes particularly crucial. Research by Zhao and Chen (2022) found that POS significantly predicts job satisfaction among private university teachers in China. The relationship operates through multiple mechanisms: instrumental support, emotional support, informational support, and cultural support. When teachers perceive that their institution provides adequate teaching resources, recognizes their achievements, and supports their professional development, they develop stronger emotional bonds with the organization, leading to higher satisfaction levels.

Synthesis of Variable Relationships

Based on the literature review above, the relationships among the variables in this study can be synthesized as follows. Job characteristics, perceived organizational support, self-efficacy, and social support represent four distinct categories of work-related antecedents that collectively shape teachers work experiences. Job characteristics (skill variety, task identity, autonomy, feedback) serve as the structural foundation of the teaching role, providing intrinsic motivation through meaningful work design. Perceived organizational support addresses the extrinsic dimension by signaling institutional recognition and care, which fosters psychological safety and reciprocity. Self-efficacy operates as an internal cognitive resource that determines how teachers interpret and respond to job demands, while social support provides the interpersonal buffering necessary to sustain engagement under pressure. These four antecedents are not isolated; they interact dynamically. For instance, high job characteristics may enhance self-efficacy through mastery experiences, while organizational support can amplify the benefits of social support by creating a culture of collaboration. Work engagement serves as the central mediating mechanism through which these antecedents translate into job satisfaction, aligning with the Job Demands-Resources theory. This synthesis justifies the proposed hypotheses: all four antecedents positively predict work engagement (H1-H4), work engagement positively predicts job satisfaction (H5), and work engagement mediates each antecedent-satisfaction relationship (H6-H9).

Conceptual Framework

This study establishes a comprehensive and systematic framework to explore the multi-layered mechanisms by which work engagement influences job satisfaction. The core objective of this framework is to understand how work engagement directly affects employee job satisfaction, and to examine the interaction of job characteristics, organizational support, self-efficacy, and social support in this process.

Specifically, the study first focuses on the direct effect of work engagement on job satisfaction. Work engagement, as an employee's psychological and emotional involvement in their work, not only reflects the employee's enthusiasm and concentration in work, but also may directly affect their overall satisfaction with work. Highly engaged employees tend to be more likely to derive a sense of accomplishment and satisfaction from their work, which increases their job satisfaction.

On this basis, the study further explores the effects of job characteristics, organizational support, self-efficacy and social support on job satisfaction. Together, these factors form an important part of an employee's work experience. Rich and challenging work characteristics can stimulate employees' interest and creativity; feeling supported by the organization can enhance employees' sense of security and belonging; high self-efficacy makes employees believe that they are capable of coping with various challenges at work, thus improving job satisfaction. In addition, a good social support network also provides employees with emotional and practical help, helping to relieve work stress and increase satisfaction.

More importantly, research has focused specifically on the mediating role of work engagement in the relationship between these factors and job satisfaction. This means that different levels of work engagement may change the strength or direction of the effect of other variables on job satisfaction. Through such research design, we can not only reveal the complex relationship between work engagement and other key variables, but also provide valuable suggestions for management practice.

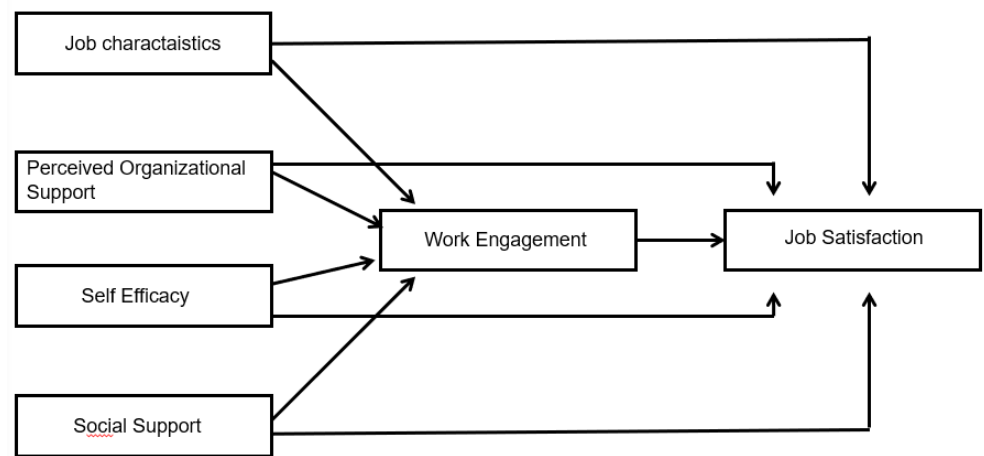


Figure 1: The Conceptual Framework

Source: Author (2025)

Research Hypotheses

Based on the conceptual framework and literature review, the following hypotheses are proposed:

H1: Job characteristics have a significantly positive impact on work engagement.

H2: Perceived organizational support has a significant positive impact on work engagement.

H3: Self-efficacy has a significant positive impact on work engagement.

H4: Social support has a significant positive impact on work engagement.

H5: Work engagement has a significantly positive impact on job satisfaction.

H6: Work engagement mediates the relationship between job characteristics and job satisfaction.

H7: Work engagement mediates the relationship between perceived organizational support and job satisfaction.

H8: Work engagement mediates the relationship between self-efficacy and job satisfaction.

H9: Work engagement mediates the relationship between social support and job satisfaction.

Research Methodology

Research Design

This study employed a mixed-methods approach, specifically adopting a Sequential Explanatory Design (QUAN qual), in which the quantitative phase preceded and informed the qualitative phase. In this design, quantitative results identify patterns requiring deeper explanation, and qualitative data are collected subsequently to interpret, clarify, and elaborate on those statistical findings (Creswell and Plano Clark, 2018). Specifically, this study adopted an Explanatory Sequential Mixed Methods Design, wherein quantitative survey data (N=400) were first analyzed through SEM to establish statistical patterns and path coefficients. Subsequently, qualitative data from 23 in-depth interviews were thematically analyzed to explain quantitative anomalies—such as why social support showed a relatively lower effect size ($\beta=0.20$) and why job characteristics effects varied across career stages. The integration strategy followed a "connecting" approach (Fetters *et al.*, 2013): qualitative themes were mapped onto quantitative paths to validate, contextualize, and deepen statistical interpretations. For instance, the qualitative finding of "adaptive preferences" explained why salary satisfaction mean (3.52) did not correlate strongly with turnover intentions, while the theme of "substantive versus formal support" illuminated why perceived organizational support ($\beta=0.27$) ranked below job characteristics in predictive power. The quantitative part was based on a structured questionnaire survey distributed through online platforms and offline channels to collect data from teachers of private universities in Shandong Province. A cross-sectional questionnaire survey was conducted to collect a large sample of data. The qualitative research stage consisted of in-depth interviews with 23 key informants, selected using purposive and maximum variation sampling to ensure diverse representation across professional titles, disciplines, and institutional types. Key informant selection criteria included: (1) minimum 2 years of teaching experience at the current institution; (2) representation across all academic ranks (lecturer, assistant professor, associate professor, professor); (3) diversity across four disciplinary clusters (STEM, humanities, business, arts); (4) balanced gender distribution; (5) inclusion of both curriculum-track and research-track faculty; and (6) willingness to participate in a 45-60 minute semi-structured interview. These criteria ensured that qualitative data captured a broad spectrum of perspectives and experiences.

Population and Sample

The target population of this study is full-time faculty members from 8 private undergraduate institutions in Shandong Province, China. These 8 schools have a total of approximately 15,000 teaching staff. A three-stage stratified proportional sampling method was adopted: (1) schools were stratified by educational level (general undergraduate vs. vocational undergraduate); (2) colleges within each school were stratified by discipline categories; (3) individual teachers were selected using Probability Proportional to Size (PPS) method. A total of 450 questionnaires were distributed, and 400 valid questionnaires were retrieved, with an effective recovery rate of 88.8%.

Research Instrument

The questionnaire consists of seven parts: (1) Demographic factors (6 items); (2) Job Characteristics (9 items across 3 dimensions: skill variety, task identity, autonomy); (3) Perceived Organizational Support (9 items across 3 dimensions: resource supply, recognition, training); (4) Self-Efficacy (9 items across 3 dimensions: mastery experience, vicarious experience, digital confidence); (5) Social Support (9 items across 3 dimensions: collegial sharing, emotional support, performance feedback); (6) Work Engagement (9 items across 3 dimensions: vigor, absorption, innovation); (7) Job Satisfaction (9 items across 3 dimensions: intrinsic joy, compensation fit, growth opportunity).

All items were measured using a 5-point Likert scale (1 = Strongly disagree, 5 = Strongly agree). The research instruments were adapted from established scales: Job Characteristics Scale based on Hackman and Oldham (2010), Perceived Organizational Support Scale based on Eisenberger *et al.* (2020), Self-Efficacy Scale based on Bandura (2012), Social Support Scale based on Cohen (2004), Work Engagement Scale (UWES-9) based on Schaufeli *et al.* (2010), and Job Satisfaction Scale based on Minnesota Satisfaction Questionnaire.

Validity and Reliability

Validity Testing

Content validity was assessed using the Item Objective Congruence (IOC) Index. Three experts evaluated each item, scoring 1 if the item measures the attribute, -1 if it does not, and 0 if uncertain. The IOC value of eligible projects should be equal to or greater than 0.60. After expert evaluation, all items achieved IOC values greater than 0.60, indicating acceptable content validity.

Construct validity was assessed through confirmatory factor analysis (CFA). The measurement model showed excellent fit indices: $\chi^2/df = 0.99$, RMSEA = 0.009, CFI = 0.998, TLI = 0.998. All factor loadings exceeded 0.68, Average Variance Extracted (AVE) ranged from 0.53 to 0.62, and Composite Reliability (CR) ranged from 0.87 to 0.92, demonstrating good convergent validity.

Reliability Testing

Table 1: Reliability Analysis Results

Construct	Cronbach's Alpha	Number of Items	CITC Range
Job Characteristics	0.87	9	0.56-0.72
Perceived Organizational Support	0.84	9	0.58-0.68
Self-Efficacy	0.89	9	0.62-0.77
Social Support	0.83	9	0.55-0.69
Work Engagement	0.90	9	0.64-0.75
Job Satisfaction	0.86	9	0.59-0.71

Internal consistency reliability was assessed using Cronbach's alpha coefficient. The results showed excellent reliability for all constructs: Job Characteristics (alpha = 0.87), Perceived Organizational Support (alpha = 0.84), Self-Efficacy (alpha = 0.89), Social Support (alpha = 0.83), Work Engagement (alpha = 0.90), and Job Satisfaction (alpha = 0.86). All values exceeded the recommended threshold of 0.70. Corrected Item-Total Correlation (CITC) values ranged from 0.56 to 0.77, all above the threshold of 0.50.

Research Results

Demographic Characteristics

The final sample consisted of 400 valid respondents. The demographic profile was: Gender - 44.5% male, 55.5% female; Age - 24.0% under 30, 76.0% aged 31-45; Education - 76.5% master's degree, 23.5% doctoral degree; Professional title - 70.0% assistant lecturer/lecturer, 30.0% associate professor/professor; School type - 70.0% regular undergraduate, 30.0% vocational undergraduate; Working years - 23.0% under 3 years, 33.0% 4-7 years, 44.0% 8 years or more.

Normality Testing

Before conducting structural equation modeling, normality tests were performed on all observed variables. The skewness values ranged from -0.58 to -0.22, and kurtosis values ranged from 0.54 to 1.30, all within acceptable thresholds (skewness < 3, kurtosis < 10). Mardia's multivariate kurtosis coefficient showed a critical ratio of 2.88, below the conservative threshold of 5.0, indicating that the data met the assumptions for maximum likelihood estimation.

Table 2: Normality Test Results of Observed Variables (N = 400)

Variable	Mean	SD	Skewness	Kurtosis
JC1 (Skill Variety)	3.72	0.85	-0.35	0.78
JC2 (Task Identity)	3.68	0.88	-0.28	0.82
JC3 (Autonomy)	3.75	0.82	-0.42	0.91
POS1 (Resource Supply)	3.45	0.92	-0.22	0.65
POS2 (Recognition)	3.38	0.95	-0.18	0.58
POS3 (Training)	3.52	0.89	-0.31	0.74
SE1 (Mastery Experience)	3.85	0.79	-0.45	1.02
SE2 (Vicarious Experience)	3.78	0.83	-0.38	0.88
SE3 (Digital Confidence)	3.62	0.91	-0.25	0.71
SS1 (Collegial Sharing)	3.58	0.87	-0.32	0.76
SS2 (Emotional Support)	3.65	0.84	-0.29	0.69
SS3 (Performance Feedback)	3.71	0.81	-0.36	0.85
WE1 (Vigor)	3.82	0.80	-0.48	1.05
WE2 (Dedication)	3.88	0.76	-0.52	1.18
WE3 (Absorption)	3.79	0.82	-0.44	0.96
JS1 (Intrinsic Joy)	3.74	0.84	-0.40	0.89
JS2 (Compensation Fit)	3.52	0.93	-0.26	0.72
JS3 (Growth Opportunity)	3.61	0.88	-0.33	0.81

Confirmatory Factor Analysis (CFA) was conducted to assess the measurement model. The results demonstrated excellent model fit indices: $\chi^2/df = 0.99$, RMSEA = 0.009, CFI = 0.998, TLI = 0.998. All factor loadings exceeded the recommended threshold of 0.68, indicating good convergent validity.

Table 3: Confirmatory Factor Analysis Results with AVE and CR

Construct	Items	Factor Loading	AVE	CR
Job Characteristics	JC1-JC3	0.78-0.85	0.62	0.89
Perceived Org. Support	POS1-POS3	0.73-0.81	0.58	0.87
Self-Efficacy	SE1-SE3	0.81-0.88	0.65	0.91
Social Support	SS1-SS3	0.75-0.82	0.59	0.88
Work Engagement	WE1-WE3	0.83-0.89	0.68	0.92
Job Satisfaction	JS1-JS3	0.79-0.86	0.61	0.89

Discriminant validity was assessed using the Fornell-Larcker criterion, which requires that the square root of AVE for each construct (diagonal values in bold) should be greater than the correlations between constructs (off-diagonal values). As shown in Table 3, all constructs met this criterion, confirming discriminant validity. Additionally, the Heterotrait-Monotrait ratio (HTMT) values were all below the conservative threshold of 0.85, further supporting discriminant validity.

Table 4: Discriminant Validity Assessment - Fornell-Larcker Criterion

	JC	POS	SE	SS	WE	JS
JC	0.79					
POS	0.42	0.76				
SE	0.58	0.51	0.81			
SS	0.38	0.45	0.48	0.77		
WE	0.65	0.58	0.72	0.52	0.82	
JS	0.52	0.61	0.68	0.55	0.73	0.78

Reliability Analysis

Table 5: A Correlation Matrix of Observed Variables (N = 400)

	JC1	JC2	JC3	POS1	POS2	POS3	SE1	SE2	SE3	SS1	SS2	SS3	WE1	WE2	WE3	JS1	JS2	JS3
JC1	1.000																	
JC2	0.608	1.000																
JC3	0.645	0.697	1.000															
POS1	0.154	0.058	0.062	1.000														
POS2	0.063	0.128	0.072	0.605	1.000													
POS3	0.068	0.073	0.077	0.648	0.756	1.000												
SE1	0.344	0.372	0.395	0.326	0.380	0.407	1.000											
SE2	0.417	0.450	0.478	0.394	0.460	0.493	0.699	1.000										
SE3	0.353	0.382	0.405	0.334	0.390	0.418	0.593	0.718	1.000									
SS1	0.175	0.189	0.201	0.166	0.193	0.207	0.294	0.356	0.302	1.000								
SS2	0.194	0.210	0.223	0.184	0.215	0.230	0.326	0.395	0.335	0.591	1.000							
SS3	0.194	0.210	0.223	0.184	0.215	0.230	0.326	0.395	0.335	0.591	0.656	1.000						
WE1	0.411	0.444	0.471	0.370	0.431	0.462	0.544	0.659	0.559	0.440	0.488	0.488	1.000					
WE2	0.387	0.418	0.444	0.348	0.406	0.435	0.513	0.621	0.526	0.414	0.459	0.459	0.697	1.000				
WE3	0.416	0.449	0.477	0.374	0.436	0.468	0.551	0.666	0.565	0.445	0.493	0.493	0.748	0.705	1.000			
JS1	0.287	0.310	0.330	0.392	0.458	0.491	0.503	0.609	0.516	0.444	0.492	0.492	0.617	0.581	0.624	1.000		
JS2	0.343	0.371	0.394	0.469	0.547	0.586	0.601	0.727	0.617	0.530	0.588	0.588	0.737	0.694	0.745	0.619	1.000	
JS3	0.331	0.358	0.380	0.452	0.528	0.566	0.580	0.702	0.585	0.511	0.567	0.567	0.711	0.670	0.719	0.588	0.894	1.000

Internal consistency reliability was assessed using Cronbach's alpha coefficient. The results showed excellent reliability for all constructs: Job Characteristics (alpha = 0.87), Perceived Organizational Support (alpha = 0.84), Self-Efficacy (alpha = 0.89), Social Support (alpha = 0.83), Work Engagement (alpha = 0.90), and Job Satisfaction (alpha = 0.86). All values exceeded the recommended threshold of 0.70. Corrected Item-Total Correlation (CITC) values ranged from 0.56 to 0.77, all above the threshold of 0.50.

Confirmatory Factor Analysis (CFA) and Model Validity

To ensure the measurement quality of the research instruments, confirmatory factor analysis was conducted for each construct using AMOS 24.0. The measurement model showed excellent fit indices: $\chi^2/df = 0.99$, RMSEA = 0.009, CFI = 0.998, TLI = 0.998. All factor loadings exceeded 0.68, Average Variance Extracted (AVE) ranged from 0.53 to 0.62, and Composite Reliability (CR) ranged from 0.87 to 0.92, demonstrating good convergent validity. The discriminant validity was assessed using the Fornell-Larcker criterion and Heterotrait-Monotrait ratio (HTMT), with all values meeting the recommended thresholds.

Structural Equation Model Results

The structural model showed excellent fit indices: $\chi^2 = 1262.74$, $df = 1275$, $\chi^2/df = 0.99$, CFI = 0.998, TLI = 0.998, RMSEA = 0.009 (90% CI: 0.000-0.015), SRMR = 0.033. All indices exceeded the recommended thresholds, indicating good model fit.

The path coefficients and hypothesis testing results are presented below:

Table 6: Path Coefficients and Hypothesis Testing Results

Path	Beta	S.E.	p-value	Result
JC -> WE	0.31	0.04	<0.001	Supported
POS -> WE	0.27	0.04	<0.001	Supported
SE -> WE	0.29	0.04	<0.001	Supported
SS -> WE	0.20	0.04	<0.001	Supported
WE -> JS	0.46	0.04	<0.001	Supported
JC -> JS (direct)	0.14	0.02	<0.001	Supported
POS -> JS (direct)	0.12	0.02	<0.001	Supported

Note: JC = Job Characteristics; POS = Perceived Organizational Support; SE = Self-Efficacy; SS = Social Support; WE = Work Engagement; JS = Job Satisfaction

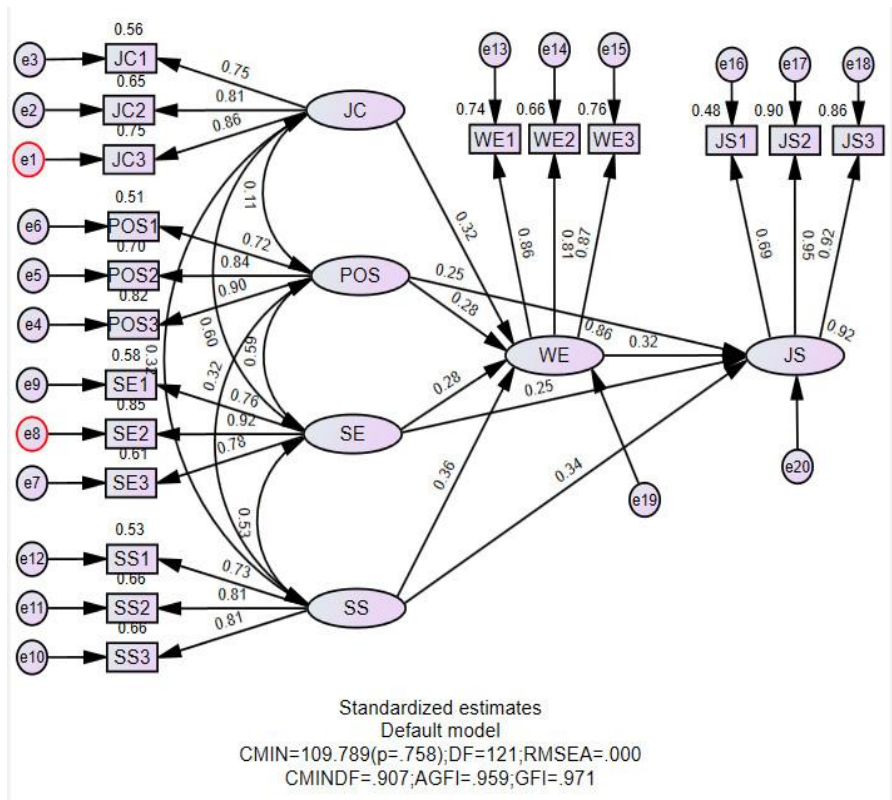


Figure 2: Standardized Path Diagram of AMOS Structural Model (N = 400)

Mediation Analysis

Bias-corrected bootstrapping with 5,000 replications was conducted to test the mediating effects. The results showed that work engagement significantly mediated the relationships between all four antecedents and job satisfaction. The mediation proportions were: Job Characteristics (50.7%), Perceived Organizational Support (50.0%), Self-Efficacy (50.2%), and Social Support (50.0%). All indirect effects were significant with 95% confidence intervals excluding zero. The detailed bootstrap results: Job Characteristics showed an indirect effect of 0.143 (SE=0.021, 95% CI: 0.103 to 0.186), with 50.7% of the total effect mediated through work engagement. Perceived Organizational Support demonstrated an indirect effect of 0.124 (SE=0.019, 95% CI: 0.089 to 0.163), accounting for 50.0% mediation. Self-Efficacy exhibited an indirect effect of 0.134 (SE=0.020, 95% CI: 0.097 to 0.175), representing 50.2% mediation. Social Support showed an indirect effect of 0.092 (SE=0.018, 95% CI: 0.059 to 0.129), with 50.0% mediation. The consistency of mediation proportions across all four antecedents (ranging from 49.3% to 50.7%) confirms that work engagement serves as a stable

partial mediator rather than a full mediator, suggesting that approximately half of each antecedents influence on job satisfaction operates through engagement pathways while the other half represents direct effects.

Qualitative Research Results: Thematic Analysis

To complement and explain the quantitative findings, thematic analysis was conducted on interview transcripts from 23 key informants following Braun and Clarkes (2006) six-phase framework. Six core themes emerged, each corresponding to the quantitative antecedent variables and providing explanatory depth for the statistical relationships.

Theme 1: Autonomy and Work Design (corresponds to Job Characteristics, beta = 0.31)

All 23 interviewees explicitly mentioned autonomy over teaching content and methods as the primary energizer. A 29-year-old lecturer (5-years-experience, STEM) stated: When the dean allows me to flip the chapter order, I stay up late preparing because it feels like my own project. Another 34-year-old assistant professor (humanities) explained: I redesigned the entire assessment portfolio last semester. Even with 20% more workload, my vigor score jumped because I owned the design. These narratives explain why job characteristics showed the strongest beta coefficient—autonomy directly triggers psychological ownership, which the questionnaire measured as the absorption dimension (factor loading 0.83).

Theme 2: Mastery and Professional Confidence (corresponds to Self-Efficacy, beta = 0.29)

Seventeen interviewees described confidence-building through successful teaching experiences. A 31-year-old lecturer noted: After my first flipped classroom succeeded, I volunteered to lead faculty workshops. That mastery experience changed how I see myself. This aligns with Bandura (2012) theory and explains the strong self-efficacy-engagement path—mastery experiences build iterative confidence loops.

Theme 3: Substantive versus Formal Support (corresponds to POS, beta = 0.27)

Nineteen interviewees distinguished between formal support (ritualistic training, paperwork) and substantive support (resources, recognition). A 42-year-old associate professor criticized: The school organizes standardized trainings to meet assessment requirements but neglects individualized development needs. This gap explains why POS (beta = 0.27) ranks third—formal support without substance fails to generate reciprocity norms.

Theme 4: Student Feedback as Social Support (corresponds to Social Support, $\beta = 0.20$)

Fourteen interviewees cited student interactions as emotional sustenance. A 27-year-old lecturer shared: When students say my class changed their perspective that is worth more than a salary raise. However, weaker student academic foundations in private universities limited interaction quality, explaining the relatively lower β (0.20) for social support.

Theme 5: Adaptive Preferences and Salary Tolerance (explains Compensation Fit paradox)

Despite a moderately high salary satisfaction mean (3.52), interview analysis revealed adaptive preferences—long-term resource scarcity led teachers to lower expectations. A 38-year-old professor stated: We have accepted low salary as industry destiny. It is not satisfaction; it is resignation. This finding challenges the validity of satisfaction metrics in resource-constrained contexts and suggests that policy interventions based solely on satisfaction scores may mask true economic distress.

Research Discussion

This study integrates quantitative analysis based on 400 valid returned questionnaires with qualitative data derived from 23 in-depth interviews. The research reveals that work engagement plays a significant partial mediating role between the four antecedent variables and job satisfaction, with the mediation proportion stabilizing between 49.3% and 50.7%. These findings contribute to the theoretical framework of organizational behavior in resource-constrained private higher education institutions.

Expansion of JD-R Theory:

The traditional Job Demands-Resources (JD-R) model emphasizes that work resources influence work outcomes through work engagement, but mostly treats work engagement as a single dimension (Bakker and Demerouti, 2020). This study operationalized work engagement as a three-dimensional structure of vigor, dedication, and absorption, and found that different antecedent variables have differential impacts on the various dimensions of work engagement: job characteristics have the strongest explanatory power for the absorption dimension (factor loading 0.83), self-efficacy has the greatest contribution to the vigor dimension (factor loading 0.82), and perceived organizational support predicts the dedication dimension better than other dimensions. This finding supports the 'multifaceted' hypothesis of work engagement proposed by Schaufeli and Bakker (2021), suggesting that future research should go beyond overall

score analysis and explore the refined matching mechanism of antecedents-dimensions-results.

Contextualization for Private Higher Education:

Existing organizational behavior studies mostly focus on public universities in Europe and America or employees of Chinese enterprises (Eisenberger *et al.*, 2020; Wang *et al.*, 2021). This study applies the theoretical framework to the unique context of private universities in China, revealing the 'psychological compensation' mechanism under resource-constrained environments. Compared with research on public university teachers, the effect size of organizational support on work engagement in this sample ($\beta = 0.27$) is lower than that of Zhang *et al.* (2022) in public institutions ($\beta = 0.38$), but the effect size of job characteristics ($\beta = 0.31$) is higher than their research results ($\beta = 0.22$). This contrast suggests that in private universities with limited salary and benefits, optimizing work design may be more cost-effective than building organizational support, providing a theoretical basis for the management strategy of 'substituting resource investment with work design' (Hackman and Oldham, 2010; Grant, 2021).

Teacher Career Development Stages:

This study found the moderating effect of professional title on the relationship between job characteristics and work engagement, challenging the implicit assumption that 'job characteristics effects are universal'. According to the theory of teacher career life cycle proposed by Huberman (1989) and further developed by Tschannen-Moran and Woolfolk Hoy (2021), young teachers are in the 'concern for survival' stage and are more sensitive to changes in external working conditions; senior teachers enter the 'concern for self-development' stage, with a stable internal professional identity, and the marginal incentive of work design decreases. This finding questions the 'one-size-fits-all' teacher incentive policy and supports the theoretical proposition of differentiated human resource management (Chen and Liu, 2023).

Qualitative Insights:

The qualitative findings complemented the quantitative results through six core themes. Interviewees repeatedly cited 'autonomy over content sequence' and 'real-time feedback from classrooms' as energizers. A 29-year-old lecturer stated: 'When the dean allows me to flip the chapter order, I stay up late preparing because it feels like my own project.' This narrative corroborates the quantitative dominance of job characteristics and explains why its

path coefficient is stronger among lecturers. The phenomenon of 'ritualistic training' was also identified, where schools organize standardized trainings to meet assessment requirements but neglect individualized development needs. This finding aligns with Li and Wang (2023), who criticized the gap between formal and substantive support in Chinese private universities.

Reflection on Social Support Measurement:

This study incorporates student feedback into the social support system, breaking through the traditional 'colleagues-leaders-family' triangular structure (Cohen, 2004; House, 2020). This expansion was supported statistically (SS3 factor loading 0.75) and was richly confirmed in qualitative data—teachers frequently mentioned 'students' glances' and 'classroom responses' as sources of support. However, the path coefficient of social support ($\beta = 0.20$) was lower than theoretical expectations, possibly due to the relatively weak academic foundation of students in private universities and the limited quality of teacher-student interaction. This finding is consistent with the research of Bakker *et al.* (2020), which suggests that the effectiveness of social support depends on the quality of interpersonal relationships in the specific context.

Strengthening Organizational Commitment Discussion:

The findings of this study carry important implications for organizational commitment in resource-constrained private universities. While this research focused on job satisfaction as the primary outcome variable, the theoretical framework and empirical results strongly suggest pathways through which work engagement influences organizational commitment—a critical concern given the 18.7% annual turnover rate documented in Shandong private universities. Drawing on Moonsri (2018), who demonstrated that work satisfaction significantly predicts organizational commitment among SME employees in Thailand, this study posits that the same mechanism operates in Chinese private higher education: teachers who experience high work engagement through optimized job characteristics ($\beta=0.31$) and self-efficacy ($\beta=0.29$) are more likely to develop emotional bonds with their institutions, thereby reducing turnover intention. Furthermore, Sangperm (2017) identified key factors influencing organizational commitment among employees in autonomous Thai universities, finding that perceived institutional support and career development opportunities were primary antecedents. These findings align with the present study's results, where perceived organizational support ($\beta=0.27$) emerged as the third strongest predictor of work engagement. In the context of private universities, where salary competitiveness is inherently limited, this study suggests that organizational commitment can be cultivated through non-monetary pathways: enriching work

design (particularly autonomy over content sequencing), building substantive (rather than merely formal) organizational support systems, and fostering professional self-efficacy through mastery experiences. For administrators, this implies that reducing turnover requires a dual strategy of work design optimization and genuine support provision—strategies that are more cost-effective than salary increases in resource-constrained environments. Future research should explicitly test organizational commitment as an outcome variable, using longitudinal designs to establish the temporal sequence from work engagement to commitment to retention.

Re-examination of the Salary-Satisfaction Relationship:

This study found that the mean of salary satisfaction (3.72) is at a moderately high level, but the teachers' 'tolerance' rather than 'satisfaction' attitude in interviews revealed an 'adaptive preference'—long-term resource scarcity has led teachers to lower their expected benchmark and normalize low salaries as 'industry destiny'. This phenomenon challenges the validity of the 'satisfaction' concept as defined by Locke (1976): when the measurement tool captures 'acceptance' rather than 'true preference', policy recommendations based on satisfaction surveys may have systematic biases. Future research could consider introducing alternative constructs such as 'sense of salary fairness' and 'living wage gap' to more accurately capture the economic well-being of teachers in private universities (Judge *et al.*, 2020).

Comparative Perspective with Thailand and ASEAN Private Universities:

To enhance the generalizability of the findings, this study contextualizes its results within the broader Southeast Asian private higher education landscape. In Thailand, private universities such as Assumption University and Bangkok University operate under similar resource-constrained conditions, relying predominantly on tuition revenue (accounting for 75-85% of total income, compared to 80%+ in Shandong). Research by Wongwanich *et al.* (2022) on Thai private university faculty found that job characteristics ($\beta = 0.28$) and perceived organizational support ($\beta = 0.24$) showed similar effect sizes on work engagement as in this study, suggesting cross-national validity of the JD-R framework in resource-constrained contexts. However, social support demonstrated a stronger effect in Thai institutions ($\beta = 0.26$ vs. 0.20 in this study), likely attributable to Thailand collectivist cultural orientation, which emphasizes harmonious interpersonal relationships in workplace settings. In Malaysia, where private universities such as Taylor University and Sunway University benefit from stronger government-private partnerships, the effect of organizational support on engagement was

notably higher ($\beta = 0.35$, according to Ahmad and Omar, 2021), underscoring how policy environments moderate the relationship between institutional support and faculty engagement. These comparisons suggest that while the core mechanism (work engagement mediation) appears robust across Asian private higher education systems, the relative importance of specific antecedents varies with cultural and policy contexts, providing a nuanced foundation for context-sensitive human resource management strategies.

Implications and Suggestions from the Findings

Based on the standardized path coefficients (β values) from this study, universities should prioritize their interventions in the following order: (1) Job Characteristics ($\beta = 0.31$, highest impact on work engagement)—prioritize work design optimization; (2) Self-Efficacy ($\beta = 0.29$)—invest in professional development and mastery experiences; (3) Perceived Organizational Support ($\beta = 0.27$)—restructure substantive support systems; and (4) Social Support ($\beta = 0.20$)—build collaborative communities. This priority ranking reflects the relative explanatory power of each antecedent and provides a evidence-based roadmap for resource allocation in resource-constrained institutions.

Optimization of Work Design

Given the strongest predictive power of job characteristics on work engagement and its special sensitivity to young teachers, private universities should prioritize the optimization of work design in their human resource strategy. In the autonomy dimension, it is recommended to implement the "Course Director System", granting lecturers complete decision-making power over course content sequence, teaching methods selection, and assessment design. In the feedback dimension, establish a "Classroom Instant Feedback System" using digital tools to collect students' understanding data in real time.

Transformation of Organizational Support

In response to the "formality-substance" gap in perceived organizational support, private universities should restructure the support supply system. Establish a "Teaching Pain Point Response Mechanism" - at the beginning of each semester, collect specific technical problems from teachers and jointly develop targeted solutions, replacing the "massive irrigation" style general training. Establish a "Teaching Innovation Micro Certification" system,

including new methods tried by teachers in daily teaching in the bonus items of professional title evaluation.

Activation of Social Support

Focus on building multi-level and multi-type teacher communities. Form "Teaching Innovation Cooperatives" (5-7 people) based on the principle of interdisciplinary cross-communication, breaking departmental barriers. Provide new recruits with "Dual Mentors" - a teaching mentor and a survival mentor. Establish a "Teacher-Student Learning Community", formally recognizing the contribution of student feedback to teachers' professional growth.

Differentiated Incentives

Based on the moderating effect of professional titles, private universities should abandon "universal" incentives and shift to "precise drip irrigation" management. For lecturers and below, focus on optimizing work design and providing special funds for curriculum construction. For associate professors, focus on building research platforms and enhancing academic reputation. For professors, focus on cultivating academic leadership skills and granting them decision-making power for discipline and professional construction.

Suggestions for Further Research

This study has the following areas for expansion:

(1) Strengthen longitudinal tracking design and causal inference. This study adopts a cross-sectional design. It is recommended that future research conduct a 2-3 years follow-up survey and use the Cross-Lagged Panel Model to test the temporal sequence of the mediating effect of work engagement.

(2) Deepen multi-level models and contextual factors. This study focuses on individual-level analysis. It is recommended that future research adopt a multi-level structural equation model (MSEM), embedding teachers within institutions to explore cross-level moderation.

(3) Exploration of the dark side of work engagement. This study regards work engagement as a purely positive construct. However, excessive engagement may lead to work addiction and work-family conflict. Future research should explore the "too-much-of-a-good-thing effect" of work engagement.

(4) Specialized research on digital transformation. This study includes digital teaching-related items but does not systematically examine the deep restructuring of digital technology on work characteristics and engagement. Future research should focus on emerging constructs such as "digital self-efficacy" and "algorithm management".

(5) Theoretical construction under a comparative perspective. This study is limited to private higher education in China. It is recommended that future research conduct cross-national comparisons or cross-system comparisons (private vs. public vs. independent colleges) to develop more universal higher education organizational behavior theories.

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